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READJUSTMENTS IN MEDICAL STUDY

THE MEDICAL CURRICULUM*

BY

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The medical profession is engaged again in its periodic task of revising its course of academic study. A special committee of the General Medical Council has drafted a new curriculum in place of that which came into operation in 1923. It would appear that certain readjustments are imminent. The principal subjects remain as formerly, with some necessary amplification in such expanding departments as physiology, and in new methods of precision in clinical studies, with some modification in the order of events. The course will occupy the same period as before—namely, five years. As hitherto, the licensing bodies and the profession itself are invited to offer constructive suggestions, and my impression is that wider and more considered attention is being devoted to the subject than formerly.

In addition to valuable criticism by the licensing bodies, whose business it is to fulfil and discharge the curriculum, and to enlightened propositions in the medical press, the British Medical Association and a conference of eighteen representatives from the Universities of London, Oxford, and Cambridge, the Royal Colleges of Physicians and Surgeons, and the Society of Apothecaries of London, have given the subject prolonged and deliberate scrutiny, and have furnished two extremely able and entirely admirable reports in every way worthy of your consideration. These reports and the notes and draft of the General Medical Council are now before this University and the whole profession for consideration and wise counsel.

I have ventured to describe the changes which are proposed and seem to be probable as readjustments. Nevertheless, the tendency of this revision seems to me to be definitely in the direction of reform. Our aim is to produce competent medical practitioners and not "specialists" (a stage which comes later, if at all). First, there seems likely to be, in the new curriculum, more practical work, fewer lectures, and less "looking on"; secondly, there is, I hope, to be more study of the living and normal body and less time devoted to the dead body—the living body in its wholeness, its genetics and its psychology, its biology and its sociology; thirdly it is proposed that provision should be made for residential periods of study in medicine, surgery, and obstetrics, a long-foretold reform, the administrative difficulties of which will certainly be compensated by a large gain of needed clinical experience; fourthly, closer and more continuous attention is being claimed for the study of health, its creation and maintenance, and the principles and practice of the preventive aspects of medicine and surgery; and fifthly, all responsible critics have emphasized the need for a scholastic foundation of cultural education.

To learn the science and art of medicine it is admitted that a scientific outlook is necessary—the critical but balanced judgement, the historical spirit which looks before and after, the inquiring mind which explores. These are the fruits of a love of learning and of true culture of soul and intellect—"that heart and mind according well, may make one music as before, but vaster." There is one other demand of a rather deeper character which should in my judgement be met. This demand would have been described by Cicero as *integritas*. We have a modern term for this deeper affinity: it is the "integration of medicine." This implies the interrelation of its several parts in one whole (as the several members of the body itself are conjoined) following Aristotle's "double track of the many into the one, and the one into the many"; it implies also the total unity and mutual interdependence of scientific truth. It is upon this theme that I propose to submit some brief observations for your reflection.

Dr. Fielding Garrison

In doing so I would respectfully invite you, on this inaugural day, to commemorate the life and work of Dr. Fielding Hudson Garrison, colonel in the United States Army, historian and integrator of medicine. "Let us now praise famous men, and our fathers that begat us, whose righteous deeds have not been forgotten. *With their seed shall remain continually a good inheritance.*"

Fielding Garrison, one of the greatest historians of medicine, was born at Washington in 1870 and died in the Johns Hopkins Hospital at Baltimore in April last. Though this remarkable man became one of the supreme historians of medicine, the Sudhoff of English medicine, his name was not widely known in this country, for he lived, like our own historian Charles Creighton, the reclusive life of a scholar, modest and unassuming. After taking his medical degree in 1893 he joined the staff of the library of the Surgeon-General at Washington, working in its seclusion for nearly a quarter of a century. After the war he became consulting librarian to the New York Academy of Medicine, and subsequently to the Welch Medical School library at Baltimore. His official work was the *Index Medicus* and the *Index Catalogue* of the Surgeon-General's library, but his legacy to us was his masterly and monumental *Introduction to the History of Medicine* (1913–29) and his miscellaneous historical papers in the *Bulletin* of the Academy of Medicine. For here is a grand inquest of the philosophy and science of medicine; here are facts arranged in an order which shall deliver their meaning—one of the most impressive and inspiring treasuries of medical history which have ever been written in the English tongue.

But Garrison did much more than this. He edited for publication the manuscript of Sir William Osler's Yale Lectures on the *Evolution of Modern Medicine*, which Osler described as "an aeroplane flight"; but the book

* Inaugural Address, University of Durham College of Medicine, Newcastle-upon-Tyne, October 10th, 1935.

has become a land of promise for every aspiring student, produced by the "best-balanced, best-equipped, most sagacious and most lovable of all modern physicians." Garrison also edited the English translation of Sudhoff's *Essays on the History of Medicine*, and gave us a graphic and authoritative account of Sudhoff's stupendous labours and his historical methods. Garrison was also an international correspondent, and the friend and helper of every kind of investigator and every lover of true learning. With immense diligence and persistence through all his years, he dedicated himself and his profound learning to his duty and to his friends, with a liberality, a versatility, and an habitual good humour rarely to be found in one man. It is appropriate that we should gratefully commemorate to-day the splendid work and noble life of Fielding Garrison, historian and integrator of medicine.

The integration and unity of medicine cannot be apprehended without a vigilant appreciation of the potential and kinetic value of its history. Let me urge you to its careful study, now and when you enter medical practice. Goethe used to say that he who cannot render an account to himself of at least 3,000 years of time will always grope in the darkness of inexperience and merely live from day to day; and old Thomas Fuller the seventeenth century historian and author of *The Worthies of England*, one of the favourite books of Sir William Osler, said that history "maketh a young man privileged with the accumulated experience of the ages and able to make conjecture of things to come." Speaking of the student of science Goethe added that "the history of science is the science itself." This is particularly true of medicine. You begin by taking the history of the patient and you end by recording the history of the case and results of your treatment (if any), and it was out of such records that Hippocrates became famous as the Father of Medicine.

So for you medical history is more than culture, it is, as Garrison says, *your business*. It increases your understanding of the relation of your patient to that varied and complex social environment which surrounds him and has a bearing upon his sickness; it connects your daily work with all other arts and sciences; it proves what in life is possible, what is fugitive, and what endures; it shows the relation of medical practice to the State and community; it is a clear, cold record of cause and effect, for good or evil; it is a lesson in the development of ethics, and provides an inexhaustible fund both of entertainment and of idealism; it is, as the House of Lords discovered the other day, the only fundamental and inescapable answer of the medical man to the diverse and alluring claims of the magician, the quack, and the charlatan; and, lastly, it is the exclusive method of demonstrating the unity of medicine and the mutual interdependence of its constituent branches. Your appreciation of history as a student and afterwards as a practitioner will be of inestimable pleasure and advantage to you, in work, in leisure, and in travel.

In illustration of the principles that should guide us in forming an opinion upon any revision of the nature and character of that sort of integrated medical study which Sudhoff and Garrison have spent their lives to establish, I submit for your consideration three points suggested by a bird's-eye view of the history of medicine from 600 B.C. to our own time (2,500 years in all). We see three great periods: first, its rise among the Greeks (Hellenic, Alexandrian, Roman) covering 800 years (600 B.C. to A.D. 200); secondly, a long period of deadening suspension during the Byzantine and Arabic domination, 1,300 years (from A.D. 200 to A.D. 1500); and thirdly, its renaissance from the sixteenth century to the present time.

I. The Principles of Greek Medicine

To those who have reflected upon Greek medicine, or have visited the Near East, or have sailed among the islands of Greece many happy dreams will recur. In those sunny lands, in the youth of man's intellect, there was born the character of English medicine, and we do well from time to time to check our thoughts and standards by those early pioneers who laid down for all time the foundations upon which we build. Sir Henry Maine, the jurist and professor of law at Cambridge, said that "nothing moves in the modern world that is not Greek"; and Sudhoff of Leipzig, the historian of medicine, says that "Greek medicine is the purest strain of medicine the world has known." It is therefore worthy of our careful attention. We cannot now review the heroes of Greek medicine, or pass through the colonnades of the temples of Aesculapius, or even accompany the rather indistinct figure of Hippocrates from house to house, and revisit his humble patients whose very names and maladies his clinical notes have made immortal. Though much has faded, much remains of the past: the actual places, the traditions, the papyri, the votive offerings, the epitaphs, the altars, and above all the written doctrines of the Hippocratic corpus of medical notes so clear that even he who runs may read. Here are four of them, and there is not a student or practitioner in the British Commonwealth who can afford to neglect or deny them. Examine them, reflect on them, practise them.

1. Medical practice is to be based on exact and accumulated observation of actual patients (and not upon rule-of-thumb notions). A definite attempt is to be made to elucidate the nature, cause, course, and result of the malady from which the patient is suffering. In a word, the doctrine and practice of Hippocratic medicine is to be a *rational* study in clinical work, and is not concerned with magic, priestcraft, or superstition, nor with theories, or theurgy, or assumption, but by accurate observation of the facts, both signs and symptoms, and by reasoning and interpretation from such facts a diagnosis and a prognosis are to be made.

2. Reliance is to be placed upon the inherent natural (that is, physiological) faculties and powers of the body likely both to predispose to disease and to heal it. Dis-ease is not an external entity attacking the body from without, but is caused by a disturbance in the natural composition or relation of the constituents of the body, not seldom due to climatic, atmospheric, dietetic, and environmental conditions and circumstances. "Nature is the healer of disease," and its causation is according to natural principles and not to be attributed to hazard or caprice.

> "I hold that it is necessary to know which diseased states arise from powers (or functions) and which from structures in the human body. . . . I mean to possess this information, *what man is, by what causes he is made*. This, at least, I think a physician must know about natural science, if he is going to perform aught of his duty, what man is in relation to foods and drinks and to habits generally, what will be the effects on each individual." (*Ancient Medicine.*)

Treatment and prevention are to be provided by the physician for the assistance of nature (and not in opposition to it) by the removal of hindrances and by strengthening the body and fortifying its capacity of resistance—namely, by appropriate application of air and water, by living in a sound and health-giving environment, by a way of life, by diet, exercise, rest, baths, barley-water, wine, honey, and vinegar, by the administration of purgatives, emetics, massage, venesection, fomentation, etc.

3. The clinical observation and diagnosis is to be conducted for each individual patient by the *inductive*

method, associated, of course, with experience and appreciation of cause and effect (as regards seasons, airs and winds, waters, situation of towns, personal habits). (*Airs, Waters, and Places.*)

4. In order to understand man and the ailments of his body it is necessary to have ethical and social concepts, comprehension, and a sense of values, being sceptical of the unverifiable. The "Hippocratic Oath" is an early and succinct example of those noble rules of conduct which have raised the art of medicine to the high and trusted position it now holds.

"In my opinion these maladies like all other things are divine; no one thing is more divine or more human than another, for all things are alike divine; yet each one has its own natural properties, and cannot come into existence without natural causes." (*Airs, Waters, and Places.*)

At the end of the fifth century B.C. these now familiar principles, though coming out of a long past, were new, positive, progressive, and pregnant with issue, and the men who practised them in the schools of the physicians at Rhodes, Cos, Cnidus, Croton, Epidaurus, Carystus, Alexandria, and elsewhere were separate and different from the men who did not—*and so it is to-day*. Then, as now, there were other techniques used in practice: empirical, arbitrary, capricious, magical, and determined by other objectives. But from the Renaissance—Arabic, Italian, or English—British medicine has been founded upon these Hippocratic conceptions, which remain your shield and safe anchorage.

II. The Warnings of the Dark Age of Medicine

Down through the centuries these principles were often forgotten or forsaken, particularly from A.D. 200 to A.D. 1500, the long period in which the advance of medicine was suspended, in spite of a glorious group of medical heroes and prophets who spoke to deaf ears, or whose works did follow them. There were in Europe barbarisms, long-continued and devastating wars, pestilences (such as leprosy, the Black Death, ergotism, and syphilis), and various political and racial upheavals, which, following the downfall of the Roman Empire, wholly preoccupied men's minds, and estopped or rather allured them from the progress of science in general and medicine in particular. Yet, in spite of war and pestilence, the arts of architecture, painting, and sculpture flourished, and statecraft enormously advanced. What then were the causes of the pause in the progress of Hippocratic medicine? They were no doubt complex, but out of a welter of confusion two facts emerge and prevail until they have rule and ascendancy.

First, Christendom and feudalism, the two dominating factors of mediaevalism, combined to protect Europe from the vast sweep of the Arab-Moslem invasion of the seventh and eighth centuries which threatened to engulf it. They were, fortunately for us, victorious, but in winning their triumph, its circumstances and results annihilated for some centuries, as Sir Clifford Allbutt established, the intellectual independence of the individual, requiring the thoughts of men to be restricted under the ban of authority. "Logic was for the Middle Ages the only means of discovery, the very source of truth," and it was logic which was formal and deductive only. After the Greek period and until the Renaissance there was, speaking generally, neither induction nor experiment.

Secondly, although all through this dark time the religious urge of Christendom conjured men to build universities, cathedrals, and hospitals—each contributory to the healing art—the fundamental error of mediaeval medical science was the divorce of medicine from surgery. The Greeks had envisaged the practice of medicine with a *surgical mind*, not only as a mode of practical therapy but as "the very right arm of internal medicine," since in the primary act of diagnosis the outward and visible signs of internal malady were the only assurance of the clinician, and in the secondary act of laying the hands on the patient the only contentment of the sick. Avicenna and the Arabs misinterpreted this Greek principle, believing that rede-craft was superior to handicraft, exalting drugs over the knife, and holding that "coction" (suppuration) was essential to the healing of wounds. Although Roger and Theodore of Salerno, Salicet of Bologna, and Langfranchi of Milan were the surgeons of the Middle Ages who stand out as the seers of a new time, as the disciples of the Greeks in Europe and as the forerunners of Paré, Hunter, and Lister, internal medicine remained essentially scholastic and monastic, and could not, and did not, advance so long as it preferred the sterile and dead hand of logical syllogism to the living inductive facts and experiment of clinical study.

The lessons of the "pause" are clear for us, and they were abundantly ratified at the Renaissance and have been confirmed in our own day and under our own eyes. As practitioners of the science and art of medicine, of whatever branch, we must never surrender to any external authority, Church or State, but only to the truth; we must never exchange the intellectual independence and freedom of the individual practitioner for collective or academic regulation; we must not allow formal and deductive logic to usurp inductive reasoning; and we must not be willing to divorce *any* branch of our science or art from the total "unity of medicine." Internal medicine and clinical surgery are dual aspects of the healing art, and it is unwise to separate them in education or in practice, as it is unwise to permit the divorce of any of their partners. Preventive medicine, obstetrics, manipulative surgery, immunology, are but applications of the science and art of medicine. Let us take no step which will make them separate entities, or isolated subjects or sciences, for they are mutually interdependent. Let us follow Aristotle's double track of the one into the many, and the many into the one.

III. The Scientific Basis of Modern Medicine

We are all familiar with the fact of the awakening or new birth of medicine which we call the Renaissance. It began in the middle of the fifteenth century and, like the Industrial Revolution, it continues to-day. We have been privileged to live in a Golden Age of medicine, and it is as difficult as it is historically fallacious to restrict the Renaissance to its advent. Fielding Garrison was fond of saying that the decennium from 1846 to 1855 was "the most brilliant in output and far-reaching in consequence in the whole history of medicine." Surfeited as we are with recent arrivals such as *x* rays, salvarsan, insulin, endocrinology, radium, the cinema, the aeroplane, and the wireless, we are apt to forget that the middle nineteenth century had also its *tempus mirabile*.

Consider Garrison's "brilliant period" of the giants of experimental medicine. Claude Bernard, the greatest physiologist of modern France and the founder of experimental medicine, made his famous researches into the digestive contribution of the pancreatic juice, into the glycogenic function of the liver as of the nature of an "internal secretion," into the vaso-dilator and vaso-constrictor nerves as they affect the circulation of the blood, and into man's dual environment, the external variable environment and the internal environment of the body the constancy of which is maintained by its circulating fluids. "Put off your imagination as you take off your overcoat when you enter the laboratory," said he, "but put it on again as you do your overcoat when you leave the laboratory." Thus he worked, know-

ing the profound truth of the enlightment of experience by the imagination. Bernard's younger contemporary, Helmholtz, published his work on the conservation of energy, located a source of animal heat in the muscles, measured the velocity of nerve current, and invented the ophthalmoscope. Though he stood near the summit of human thought he never forgot he was a physician. As a popular expositor of science he is only approached by Huxley, Tyndall, and Sir Arthur Keith. In 1846 Morton administered ether anaesthesia for a surgical operation at the Massachusetts General Hospital, and in the following year Sir James Young Simpson produced chloroform anaesthesia in himself at his house in Queen Street, Edinburgh. Then there was Semmelweis, the Hungarian, assistant obstetrician in Vienna, who recognized puerperal fever as a septicaemia, conquered it by antiseptic methods in his own wards, and thus reduced excessive maternal mortality. He may be said to have died in defence of his work. Garrison said he was "one of medicine's martyrs, and in future will be one of its far-shining names, for every child-bearing woman owes something to him."

Another of the immortals of this decennium was Carl Ludwig, professor of anatomy and physiology for nearly half a century at Marburg, Zurich, Vienna, and Leipzig, and of whom Sir Lauder Brunton used to say he was "like the great architects of the Middle Ages who built the wonderful cathedrals which we all admire and whose builder's name no man knows." He invented instruments of measurement of vital processes, and explored urinary excretion, lymph formation, innervation of the salivary glands, and the hydraulics of the circulation. He was second only to Boerhaave of Leyden as a teacher of international pupils, and was almost as versatile and enchanting as Goethe. But I must not weary you with details of the great names in medicine from 1845 to 1855. There was James Marion Sims on women's diseases, Addison on pernicious anaemia and the suprarenals, Waller on degeneration of the spinal nerves, von Kölliker on histology, Cohn on the nature of bacteria, Garcia on the laryngoscope, and there was the glittering fame of Florence Nightingale. Nor is this all, for Louis Pasteur was then at work at Lille on the cause of fermentation, and Charles Darwin in Kent was writing *The Origin of Species*. Here in the short span of ten years were laid the scientific foundations of modern medicine. They were also much more than foundations. They have proved to be the *raison d'être* of our science, they establish the validity of medical and surgical practice, and they are the ultimate defence against all magic and medical imposture.

IV. The Applications

Let us count up our gains and the legacies of our inheritance as represented in these three illustrations. We possess the positive principles of Hippocratic clinical medicine; to this we add the solemn and significant warnings of the Dark Ages—the thraldom of authority, the negation of the unity of medicine, the divorce between medicine and surgery, the absence of the independence and freedom of thought, and the neglect of inductive and experimental medicine; and thirdly, we have the marvellous return of the Greek spirit in the Renaissance and its outburst in a brilliant decennium of the nineteenth century, in which brief period there were born the far-reaching and dynamic truths of internal secretion, of control by the nervous system, of anaesthesia, of antisepsis, of the physics of the circulation, of endocrinology, of bacteriology, and of medical sociology. What a galaxy for our encouragement and guidance! *And what are we doing with it all?* Remember the term "we" stands for the competent medical practitioner, still the backbone of the profession, preventive and curative.

First, we must integrate the substance of this knowledge and experience of the "wisdom of the body"; we must be vigilant to make it a vital part in our study and our practice of the unity of medicine. This splendid tapestry of scientific truth, well woven in warp and woof, is our inheritance, and the opportunity of every happy medical warrior, as Wordsworth said, to "turn his necessity to glorious gain." Yet that is not the whole of our duty. For, secondly, as well as apprehending the wisdom of the body we must have what the ancients called "the understanding of the heart." Do not forget that the years 1847 and 1848 fall within this same far-reaching decennium of which we have been thinking. Those years marked the commencement of the organization of preventive medicine by the State in the interest of national health (Towns Improvement Act, 1847, Public Health Act, 1848), and into which organization have been brought the medical practitioner and the medical officer of health. We are all familiar with the grand procession of events that has not only changed the face of England but also incidentally the whole future outlook and service of English medicine. For it created a wider sphere and opportunity for the medical practitioner to apply the principles of preventive medicine, in his own practice and far beyond its borders, both to the beginnings of disease and to its sequelae. We have but to recall the fact that there are now, all over the country, no fewer than 20,000 registered practitioners engaged wholly or partly in the public service of the community, to realize the profound revolution which has taken place in our own time in the sphere and scope and compass of English medicine. We are now enlisted, by the will of the State and our own assent, in the service of the community under the Poor Law and Public Health and other Acts, in maternity, infant welfare, and school medical services; in health insurance; in dealing with tuberculosis, venereal and infectious disease, and mental deficiency and lunacy; in orthopaedic and preventive surgery; in medical research; in municipal hospitals; in the industrial and factory system; and in the public and personal teaching of hygiene.

Lastly, all this vast development and the varied and far-reaching social issues which emerge from it must come within the consideration and foresight of those who would "take occasion by the hand and make the bounds of freedom wider yet" in readjusting the course of medical study in an age of preventive medicine. For generations we have been brought up on an individualistic basis, concerned chiefly with the healing of the diseased body and ministering to the disordered mind, and "so credulous of cure," as Shakespeare said. But circumstances outside our control have been making a new kind of demand upon us, threefold in its application. We must become more *communal* in outlook; we must become more *preventive* in purpose and intention; and we must address ourselves to a *positive and constructive interpretation of health* and wholeness of body and mind. We are learning that the science and art of medicine must fulfil and justify itself in new ways for the betterment of man's estate. Its practical value in the minds of men depends upon its capacity to "deliver the goods," as the man of affairs would say. The art of medicine, he would add, is a potential commodity which should direct itself to raising the whole standard of the life, health, and capacity of all classes of the community. We cannot decline to take our share in such an enterprise. While we may recognize the widening province of curative medicine we should not allow ourselves to become too exclusively absorbed in the alleviation of morbid conditions and disharmonies of the body that we fail to become what Matthew Arnold called "helpers and friends of mankind," in its search for a more abundant physical life for the whole community.

TROPICAL MEDICINE*

INTRODUCTORY ADDRESS

BY

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In addressing you to-day on the subject of tropical medicine it may perhaps be well for me to survey very briefly some of the great discoveries which have been made in this field since the beginning of this century. These discoveries have led to vast improvements in the health of those residing in tropical countries, and incidentally to the recognition of tropical medicine as a special branch of medical science.

Diseases peculiar to the Tropics differ in many respects from those found in temperate zones, and it was this difference, combined with lack of knowledge on these subjects, which led Sir Patrick Manson to institute special schools for the study of what is now known as tropical medicine. Though this term has been applied to a particular branch of medicine, it must be remembered that those desirous of practising in the Tropics must have a sound foundation of general medical knowledge, in addition to special knowledge of tropical medicine, because many diseases are cosmopolitan in character and occur both in temperate and in tropical regions.

It has from time to time been said, and this even quite recently, that there is no such thing as tropical medicine, but this view is, in my opinion, quite incorrect. There are many diseases—such as trypanosomiasis, sprue, and yellow fever, to quote only a few—which are restricted to the hot parts of the globe, while there are others, although occurring in temperate climates, that are much more common in the Tropics—for example, malaria, dysentery, and cholera. Another feature of tropical diseases which differentiates them from those of temperate climates is that, in many cases, insects play a part in their transmission. Again, tropical diseases are more frequently associated with protozoal and helminthic parasites than are diseases of other parts of the world. For these reasons it is essential that the student wishing to understand tropical medicine should have a special training in protozoology, entomology, and helminthology. The general medical education of the average student cannot equip him for practice in the Tropics, where the whole outlook on disease differs from that in temperate climates.

Foundation of Tropical Medicine Schools

Those who would have tropical medicine once more lost in the maze of general medicine must have failed to realize the special features to which I have just referred, and that in every branch of life at the present day specialization alone will ensure the greatest efficiency and progress. There is, however, little danger of any such retrograde step being taken, for the opening up of tropical countries is such an important part of our policy of colonial and empire development that more and more is a sound knowledge of tropical medicine demanded of those taking up practice in such countries.

After the foundation of the tropical schools in England—in Liverpool and London—other nations, realizing the importance of this special branch of teaching, quickly followed our example. France, Germany, and Belgium have established similar institutions, and now every country owning tropical dependencies affords facilities for special instruction in tropical medicine. America has schools, our own Navy, Army, and Air Force have special courses, and, more recently, the Empire has carried on the good work by the founding of institutes in Calcutta and Sydney for a similar purpose.

The history of the last thirty-five years well illustrates the value of this special concentration on one branch of medicine. When I began the study of tropical medicine in 1899 all patients suffering from trypanosomiasis and kala-azar coming home to England invariably died, while those with bilharziasis were doomed to a miserable existence for the rest of their lives without any hope of relief. Now all this is changed, and in the past thirty-five years advances have taken place which rival or even excel those of any other similar period in the history of medicine.

Filariasis

The riddle of malaria transmission had just then been solved. The explanation of the spread of filariasis by the mosquito as intermediary host was carried a stage further by the finding of the mature worm in the proboscis of the insect, a discovery which indicated that the infection was spread directly by the bite of the mosquitos and not through water as was previously supposed. The name of filariasis will always be associated with Australia, because of the discovery by Dr. Joseph Bancroft of the adult forms of the parasite in a lymphatic abscess of the arm in Brisbane in 1876. Cobbold, to whom the worms were sent for identification, named the parasite *Filaria bancrofti* as a compliment to the discoverer. Later, Dr. Joseph Bancroft's son, Dr. T. L. Bancroft, also did excellent work on this subject.

Yellow Fever and Trypanosomiasis

In this period it was proved, by the American commission in Havana in 1901, that yellow fever was spread by mosquitos; the commission also proved that the causative agent was a filterable virus. As a result of this work Havana was freed from yellow fever, and for the first time an effective control of this terrible malady was reached. A direct result of this was that Gorgas was able to proceed with the sanitation of the canal zone, rendering possible the construction of the Panama Canal. Further endemic areas in the canal zone and in South America were also freed, and the disease has been very largely extinguished from the New World.

In recent years, however, yellow fever has been shown to be prevalent on the west coast of Africa. The discovery by the Rockefeller Commission of an experimental animal, the rhesus monkey (*Macaca mulatta*), susceptible to the disease, has made possible great advances in our knowledge of the infection, while what are called serological protection tests have revealed the existence of endemic foci scattered widely among the natives of West Africa. Protective inoculations, based on work done by Theiler with the virus fixed for the brain of mice, are now available for those proceeding to yellow fever areas.

In 1901 Ford on the Gambia discovered an organism in human blood which Dutton identified as a trypanosome. He described the resulting disease as trypanosomiasis fever. In 1903 Castellani found similar parasites in the cerebro-spinal fluid of persons suffering from sleeping sickness in Uganda, and this led to the important discovery that this malady was only a late stage of trypanosomiasis of man.

Kala-azar

Kala-azar, which is a native name meaning black fever, was another tropical problem that for many years defied solution. The disease, which has a wide distribution,

* Read in opening a discussion in the Section of Public Medicine at the Annual Meeting of the British Medical Association, Melbourne, 1935.

was at that time supposed to be limited to Assam, where it yearly killed off hundreds of victims, and often spread in epidemic waves of great severity. Many commissions had studied it, but had failed to discover its cause. In 1900, however, Leishman found certain parasites in the spleen juice of a soldier who had died from dum-dum fever, and in a paper published in 1903 he suggested that they were the cause of kala-azar. This was proved to be the case, the organism being given the name of *Leishmania donovani* in honour of Leishman and of Donovan, who had also found similar bodies in cases of splenomegaly from Madras.

Helminthic Diseases

During these years notable advances were also made in combating helminthic diseases. A peculiar form of anaemia present in Porto Rico was shown to be due to ankylostomiasis, and, following upon this discovery, this disease was found to be prevalent in the southern United States. In 1904 Katsurada identified, in the portal veins of two cats, schistosomes with eggs similar to those found in human beings suffering from an endemic disease characterized by cachexia, enlargement of the spleen and liver, ascites, and anaemia, and he was able to demonstrate that this condition was one of schistosomiasis caused by the presence of *Schistosoma japonicum*, a bilharzial parasite similar to those responsible for the well-known Egyptian bilharziasis. The year 1904 was also important for the discovery that goats suffered from undulant fever, and that the chief source of infection in man was their milk. This led to the eradication of this debilitating disease from among members of the Navy and Army in Malta.

Intravenous Antimony Treatment

Perhaps one of the most brilliant discoveries in tropical medicine, however, was that of the method of giving antimony (tartar emetic) directly into the veins. It is extraordinary that a drug which when given by the stomach causes vomiting, and when injected intramuscularly or subcutaneously causes extensive sloughing, can yet be safely introduced directly into the blood stream without doing any harm. To Broden and Rodhain, two Belgian doctors working in the Congo on sleeping sickness, is due the credit of this method of administering antimony preparations. In my presidential address to the Royal Society of Tropical Medicine and Hygiene, entitled "A Retrospect of Tropical Medicine from 1894 to 1914," I said:

"Broden and Rodhain, working on the Congo with cases of sleeping sickness, found the same difficulties in administering antimony, and as an experimental trial gave some natives who were *in extremis* a little of the solution of the drug into the veins. The result was extraordinary; the drug, instead of sloughing the walls of the veins, disappeared into the circulation without producing any ill effects, and ameliorated the condition of the patient in a most remarkable manner. Larger doses were then tried, and the intravenous route was established. I think I may say without exaggeration that this discovery of the intravenous administration of antimony is one of the greatest that medicine has ever seen. It has enabled us to control trypanosomiasis (partly), kala-azar, ulcerating granuloma, and bilharziasis, and to rob these terrible diseases of their terrors. The saving of suffering and life it has brought about is inestimable. Before its introduction, for example, 95 per cent. of kala-azar patients died; now the conditions are entirely reversed, 90 per cent. or so recovering. Yet if one were to ask the man in the street, medical or otherwise, if he had ever heard of Broden and Rodhain and their work, he would probably invariably reply in the negative.

"The first records of the use of tartar emetic injections in leishmaniasis were made at the Brazilian Society of Dermatology in 1913, when Machado and Vianna showed cases of cutaneous leishmaniasis successfully treated in this manner. In the same year (1913) Arāgao and Vianna treated cases of ulcerating granuloma by the same method with excellent results. Rapid healing of the lesions took place in both their cases, the results being permanent. Terra and Rabello confirmed this work, and the treatment then became generally adopted for this loathsome disease. During 1914, further papers on the treatment of cutaneous leishmaniasis by intravenous injections of tartar emetic were published by Da Silva and Carini in Brazil."

Subsequently Caronia in Italy treated the leishmaniasis (kala-azar) of the Mediterranean with success with this drug, while Rogers introduced the method into India. More potent organic preparations of antimony have been used in recent years, and now kala-azar, which was at one time regarded as hopeless, can be easily cured.

In 1917 Christopherson tried antimony injections in the treatment of vesical and rectal bilharziasis at the Khartum Civil Hosp'tal with a success that passed all expectations. It was found that a course of intravenous tartar emetic injections resulted in a cure, and the disease was thus for the first time brought within the effective range of therapeutics. Patients who had suffered from the disease since the South African War, on treatment by the new method, were quickly and definitely cured. Results such as these speak for themselves.

Plague and Beri-beri

In 1907 a second Plague Commission, by a series of careful experiments, showed that the rat and its fleas played an important part in the spread of plague, the disease being transmitted from rat to man by the bites of rat fleas.

The conquest of beri-beri, a disease causing an enormous mortality among the inhabitants of the Federated Malay States and other parts of the East, has been another triumph for tropical medicine. It was considered in some way or other to be connected with diet, but it was not until Fraser and Stanton, who began their investigations in 1907, established the present-day view that it was a deficiency disease that any progress in control was made. They first studied the occurrence of the disease in groups of labourers living under controlled conditions as to diet and other factors, and then, by analysis and experiment in the laboratory, showed that the basic factor in the causation of the disease was an absence from the diet of a substance minute in amount but of high value in nutrition, one of a group of substances to which Funk later gave the now familiar name of "vitamins." Fraser and Stanton's brilliant piece of work not only initiated the idea of vitamins and deficiency diseases, but also enabled the Governments of the countries concerned to control beri-beri and to reduce its incidence practically to *nil*, thus saving many lives and much money.

Another important discovery which I must mention is the use of emetine, one of the alkaloids of ipecacuanha, in amoebic dysentery. On February 6th, 1911, Captain Edward B. Vedder, of the Medical Corps, United States Army, read a paper before the Manila Medical Society entitled "A Preliminary Account of some Experiments Undertaken to Test the Efficacy of the Ipecacuanha Treatment of Dysentery." He found in this experimental work that emetine was very toxic to amoebae *in vitro*. Following this up in Calcutta, Sir Leonard Rogers put the matter to a clinical test, and devised a method of giving the alkaloid hypodermically. This discovery led to a revolution in the treatment of amoebic dysentery, and to the disappearance, to a large extent, of its most serious consequence—liver abscess.

During the war Professor Leiper with his colleagues discovered the life-history of *Schistosoma haematobium* and *S. mansoni*. Previously nothing was known of the life-cycle of these particular species of schistosomes, though the Japanese had worked out the complete life-history of *Schistosoma japonicum*, to which I have already referred.

Future of Tropical Medicine

The examples I have given do not in any way exhaust the remarkable discoveries that have been made in the field of tropical medicine during the past thirty or forty years. They serve, however, to illustrate the importance of this branch of medicine as a special subject. It has been said that all the great discoveries in tropical medicine have already been made and that most of the plums have been gathered. In one sense this may be true, and though we hardly expect in the future such dramatic discoveries as the parasite of sleeping sickness or the method of spread of malaria, there are many problems which await solution, as, for instance, the causes of blackwater fever and sprue. It is perhaps in the realms of biochemistry and experimental laboratory research that future discoveries will be made.

From the clinical viewpoint the future of tropical medicine lies in the increasing application of laboratory methods and co-ordinated team work. The keystone to the arch of correct diagnosis frequently lies in the clinical laboratory, and in many instances can only be made by means of its help. Apart from the demonstration of infective agents such as protozoa, helminths, Rickettsia bodies, and spirochaetes, etc., serological, biochemical, and haematological data are becoming more and more essential, not only in diagnosis but also for controlling treatment.

The growing importance of tropical medicine resulted, as I have indicated, in the founding at the beginning of this century of schools of tropical medicine, where this subject could be taught to those taking up medical work in tropical countries. It also had another result, and that was the establishment in London in 1907 of the Society of Tropical Medicine. This society began in a small way, but has steadily grown in membership and importance. It became in 1931 a Royal Society, and in place of the rented rooms which it at first occupied, it now has premises of its own in Portland Place—Manson House—which was opened by the Prince of Wales on March 17th, 1932. On its roll of membership to-day there are nearly 1,700 Fellows, representing tropical medical interests in all parts of the world. Among the Fellows in our own Empire are to be found members of the staffs of all the various tropical schools and institutes; of the Navy, Army, and Air Force; of the Colonial and Indian Services; and of many other organizations which send medical men to the Tropics, while tropical medicine outside our own Empire is fully represented by a long list of Fellows from many other countries. The society, the largest of its kind, now stands as the centre of tropical medicine for our Empire.

Tropical Medicine in Australia

Tropical medicine is of great importance to Australia and her Mandated Territories, and that is why I have dealt with the subject somewhat fully. You have here already malaria, sprue, dysentery, ulcerating granuloma, yaws, leprosy, dengue, and filariasis, and if care is not taken other diseases and parasites may be introduced, just as *Filaria bancrofti* was by the Chinese many years ago. The founding of a Tropical School in Sydney shows, however, that you have appreciated this danger, and if doctors who are destined for the Northern and Mandated Territories are given an adequate training to enable them to deal with the special diseases to be found in those regions, then all will be well. They will be able not only to recognize them, but also to treat and prevent them. By their knowledge they will be instrumental in stopping the introduction of other scourges, which, if allowed to take root, will bring death or ruined health to many people, and will necessitate vast expenditure of money and labour before they can be effectively controlled or eradicated. As was the case with the construction of the Panama Canal, the success of any enterprise in a tropical country, whether in this or any other land, is directly proportionate to the extent to which tropical diseases are controlled by a proper practice of tropical medicine in all its aspects.

INTUSSUSCEPTION*

BY

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Before commencing the subject of intussusception I would like first of all to pay tribute to my old teacher and colleague, the late Sir Charles P. B. Clubbe, whose work on this condition is well known. It was his intense enthusiasm in the subject which first aroused my own interest in this connexion.

Statistical Review

An analysis of the cases of intussusception which have been treated at the Royal Alexandra Hospital for Children, Sydney, during the years 1921 to 1934 inclusive showed that 486 cases had been treated by ten surgeons; 430 of the patients recovered and fifty-six died, a mortality rate of 11 per cent. Three of the surgeons made a practice of using a preliminary injection of saline per rectum before operating, and their combined mortality rate was 9.8 per cent. The other seven operated in all cases without a preliminary injection, their combined mortality rate being 14 per cent. In the series of 486 cases there were 313 males and 173 females.

The ages of the children were as follows:

1 to 3 months	10	12 to 24 months	35
3 to 6 months	156	3 years	6
6 to 9 months	190	5 years	2
9 to 12 months	83	7 years	1

The graph (see below) shows the incidence of the condition at different ages from 1 to 21 months.

Although there were generally about an equal number of cases treated during each of the months of the year, there were actually 158 cases treated during the hot months—November, December, January, and February—and 151 during the colder months—May, June, July, and August. This suggests that gastro-enteritis may play a minor part in the causation of some cases.

* Read in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Melbourne, 1935.

Use of Injection

Below are given the results obtained by the three surgeons who used a preliminary injection of saline before deciding upon operation.

Surgeon A treated 42 cases, and reduced 45.2 per cent. by injection: reduced without operation, 10 ; found reduced at operation, 9. Unreduced by injection, 23.

Surgeon B treated 46 cases, and reduced 43.4 per cent. by injection: reduced without operation, 13 ; found reduced at operation, 7. Unreduced by injection, 26.

Surgeon C treated 83 cases, and reduced 57.8 per cent. by injection: reduced without operation, 35 ; found reduced at operation, 13. Unreduced by injection, 35.

Author's Results.—In a series of 54 cases which I have treated since May, 1926, the results were as follows: reduced without operation, 20 ; found reduced at operation, 14 ; unreduced at operation, 20. Reduction by injection was thus obtained in 62.9 per cent. Since November, 1918, when I commenced using hydrostatic pressure to bring about reduction, I have treated 159 cases with the following results: reduced without operation, 64 ; found reduced at operation, 32 ; unreduced by injection, 63. Reduction by injection was therefore obtained in 60 per cent.

The average duration of the cases reduced by hydrostatic pressure in a series of 159 cases was as follows. In cases reduced by hydrostatic pressure where no operation was performed the average duration was sixteen hours. In ten of these the duration was over twenty-four hours, in three over forty-eight hours, and in one over three days. The average duration of the cases in which an operation was done to make sure that reduction had been effected was nineteen hours. The average duration of the cases which could not be reduced by injection was thirty-one hours.

Recurrent, Irreducible, and Fatal Cases

In my own series of 100 cases, which were reported in the *Medical Journal of Australia*,[1] there were nine recurrent cases. Seven cases recurred one week, four weeks, two months, five months, four months, four months, and eighteen months respectively after the first attack. One case recurred six times in two years, and another three times in nine months.

In the series of 486 cases treated by ten different surgeons there were five patients in whom the bowel was resected ; all died. In four patients the bowel was torn through in attempting reduction, and all died. In one child suffering from whooping-cough the abdominal wound gave way on the sixth day, and the child died. Two children died from bronchopneumonia fourteen days after operation. There were several cases where reduction was effected without any difficulty, and the children died on the fourth or fifth day from general peritonitis or from intestinal obstruction. Six of the children died either on the table or shortly afterwards from shock.

The mortality of 486 cases mentioned in this paper was 11 per cent. In 210 cases of my own (fifty-one reported in the *Medical Journal of Australia*, November, 1918, 105 in the same journal, August, 1926, and fifty-four reported in this paper) there were fourteen deaths, a mortality of 6.6 per cent.

Varieties

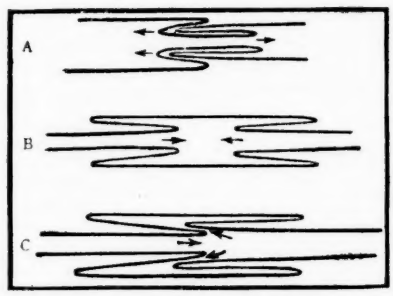
Naming the varieties according to the starting-point of the intussusception, and calling the variety where the apex passes through the ileo-caecal sphincter "ileo-colic," the classification will be as follows: ileal, ileo-caecal, ileo-colic, caecal, and appendicular.

Some authorities maintain that certain of the so-called ileo-colic forms are produced by a prolapse of the last few inches of the ileum through the sphincter, and that the apex therefore constantly changes. It is difficult, however, to prove this, and the origin of this variety is probably the same as in all other forms. According to some authorities also there is no true caecal or so-called caeco-colic variety. They maintain that these should be included in the ileo-caecal forms, and that the dimple in the caput caeci, marking the last portion to unfold on reduction, is produced by partial strangulation of this portion of the caput during the progress of the ileo-caecal type. If such is the case, why is the dimple not present in all ileo-caecal varieties? Clubbe[2] found that in 30 per cent. of his cases the caput caeci was the last part to unfold, and that in 28 per cent. the ileo-caecal sphincter appeared to be the starting-point ; also that 30 per cent. of his cases were ileo-colic.

Any of the varieties may become double—that is to say, the original intussusception stops at some point, and then forms the starting-point of a second by becoming invaginated into the bowel distal to it. In the same way triple and even quadruple forms may occur. Intussusception may occur in two sections of the intestinal tract simultaneously, forming multiple varieties.

Retrograde Intussusception

Occasionally one encounters a double intussusception, one portion of which appears to be of the retrograde type. Here an intussusception of the direct type, after progressing for a certain distance, stops at that point instead of passing onwards. The intussusception so formed then passes backwards into the bowel proximal to it. I have seen one such case, and unless one is aware that such a condition may occur it may cause some delay and confusion in attempting reduction. Dr. Philip Buckley[3] is of the opinion that these are formed by the meeting of two intussusceptions, one being direct and the other retrograde, the direct passing for a short distance into the retrograde. Two methods of formation of a double intussusception, one portion of which is of the retrograde type, are shown in the diagram below.



A, Direct intussusception (to the right) passes in a retrograde direction and becomes a double intussusception.
B, Multiple intussusception, one direct, the other retrograde.
C, Double intussusception formed by the meeting of the two varieties shown in B. The retrograde has included portion of the direct.

Aetiology

There is no doubt that anatomical, physiological, and pathological factors play a part in the causation of intussusception. I believe also that heredity is a factor.

Let us take the anatomical features first. The great majority of cases occur in the neighbourhood of the ileo-caecal sphincter. This is a region where there is a great disproportion between the diameters of ileum and caecum, particularly at the age period when intussusceptions are common. At birth, and during the first few weeks of life, there is no great disproportion between these two portions of the intestine. The mobility also of the ileo-caecal region is greater in infancy than in later life, and in my experience a mesocolon of variable length is

present in most cases of intussusception. In one of my cases the apex of the intussusception, which was of the ileo-caecal variety, projected five inches beyond the anus. A fact also worth noting is that failure of rotation of the mid-gut loop—that is, the stage of fixation of the mesentery—is, like intussusception, more common in males. Intussusceptions generally occur in the thinner ileum, and, at any rate in children, practically never in the thicker-walled jejunum. Another anatomical factor, to which I called attention thirty years ago, is that Peyer's patches are more numerous in the lower ileum, and one of them may form the starting-point of an intussusception.

As regards the physiological factors, Fraser[4] has pointed out that the ileo-caecal region is one in which there is a peculiarity with regard to the type of nerve supply. The ileum receives a supply from both the sympathetic and parasympathetic systems, and the caecum and ascending colon from the sympathetic only. One can readily understand that, as a consequence, this would be a region where some irregularity in the peristaltic movements of the bowel would be prone to occur. Anti-peristalsis of the ascending colon and caecum is a normal occurrence in some animals, but I understand that such has not been demonstrated in man. If anti-peristalsis did occur here it would naturally predispose to intussusception. Fraser draws a parallel between what he terms the arrhythmias of infancy and early childhood (6 months to 2 years), the period when intussusceptions commonly occur, with the achalasias of early infancy. Both conditions are probably due to some defect in the neuro-muscular mechanism. It is interesting to note that both these conditions, as well as the purely anatomical one (abnormality of rotation of the mid-gut loop), are more common in males. Several of the cases in my series began immediately after a fall out of a perambulator, an occurrence which might be expected to set up irregular peristalsis.

A few cases of intussusception occur during an attack of enteritis, but the great majority are seen in children who appear to be in exceptionally good health. In the series of cases referred to in the earlier part of this paper I found that about an equal number occurred in each month of the year, there being a slight preponderance in the hotter months, suggesting that gastro-enteritis may play a part. Occasionally some dietetic error starts the trouble, for grape skins or seeds, pieces of paper, etc., are occasionally found in the first return from an enema after reduction. Rarely, a polypus may form the starting-point of an intussusception, but I have never met with such a case in children.

Although heredity probably plays only a minor part in causation, it is quite likely that more thorough investigation might show that its role is more important than is commonly believed. I have seen several instances where two children in the same family have suffered from intussusception, and one where the father had had an intussusception in infancy. It is seldom that parents can give details of their infantile ailments. One would expect a hereditary tendency in the occurrence of abnormalities of rotation of the mid-gut loop, and therefore of abnormalities of the length of the mesentery and mesocolon, just as heredity plays such a large part in other deformities.

Symptoms and Diagnosis

The symptoms of the typical case scarcely need enumerating. There is an extremely sudden onset of acute abdominal pain in a previously healthy infant. The pain is evidenced by the appearance of shock, with its symptoms of pallor, coldness of the extremities, rapid pulse, sweating, and subnormal temperature. The initial shock soon passes off, and is followed by restlessness, drawing up of the legs, vomiting, and later on by the passage of blood-stained mucus. Such a history is unequivocal evidence of an intussusception. The symptoms, however, are not always so obvious. The onset may occasionally take place during an attack of gastro-enteritis, and may thus be masked by those of this complaint. I have seen several such cases where the diagnosis has been delayed on this account.

A male child, aged 5 months, had been ill for two weeks with severe diarrhoea. There were seven to ten motions daily, occasionally blood-stained. Just before admission to hospital the child had a severe attack of abdominal pain, which was relieved by an enema. The diarrhoea continued, and more blood appeared in the motions. At this stage abdominal examination revealed the typical sausage-shaped tumour of an intussusception. This was reduced by hydrostatic pressure, and the infant was given a teaspoonful of powdered charcoal, which was recovered by an enema six hours later.

Occasionally no blood appears in the rectal discharge, even though the intussusception may have been present for several days. Such cases are apt to mislead even the experienced paediatrician. In one such case which I operated on the intussusception was of the ileo-colic variety, and commenced in the ileum ten inches from the ileo-caecal sphincter. In these cases it appears as if the intussusception acted as a plug in the ileo-caecal sphincter, completely preventing the passage of blood. Again, we sometimes see cases where, owing to an unusually long mesentery, an ileo-caecal intussusception may project several inches beyond the anus, and thus be mistaken for a prolapse. In such instances intestinal obstruction may not be complete for several weeks, and strangulation of the bowel is slow to occur because of the long mesentery. A case of this kind was reported by me in the *Medical Journal of Australia* (October 6th, 1934, p. 455). Then again, the shock may be so severe that death results before the diagnosis is made.

A male child, aged 12 months, became suddenly ill with symptoms of severe shock at 9 a.m. Vomiting occurred, castor oil was given, and as promptly vomited. The child did not appear to be in much pain, but twenty-seven hours after the onset it suddenly collapsed and died. Necropsy revealed a large intussusception.

Some cases undergo spontaneous reduction and recurrence at intervals over a period of weeks. The usual mass can be felt, but disappears before an operation can be performed, only to reappear later.

Lastly, there are chronic cases, which are often diagnosed as appendicitis or as enlarged lymph glands. In these cases it is the appendix which first invaginates, and they are generally seen in older children. Intussusception of the appendix is of two kinds: (1) a complete inversion of the appendix first occurs, followed by its passage along the colon, drawing the inverted caecum along with it ; (2) the base of the appendix forms the starting-point, and the appendix only becomes partially inverted. Both varieties are slow to progress, and complete obstruction may not occur for several days, or not at all ; hence the presence of a tumour is apt to be mistaken for a mass of glands or a faecal accumulation. Pure colonic varieties are sometimes seen in older children, and here also complete obstruction may not occur for several days.

A fact worthy of note in the acute varieties of intussusception is the absence of abdominal distension in the early stages of the complaint. For some time after the onset—it may be for ten or twelve hours—the abdomen remains comparatively soft and flaccid. This helps considerably in the treatment by hydrostatic pressure, and it also enables the mass to be felt with ease. The palpable mass is somewhat curved or sausage-shaped, but the resemblance to the form of a sausage is more fanciful than real. The situation of the tumour, of course,

depends on the variety and extent of the intussusception, but in the early stages it is always palpable, generally without, occasionally only after, the abdominal muscles have been relaxed by an anaesthetic. Later on—it may be after the lapse of thirty-six or forty-eight hours—it may be impossible to feel a tumour because of abdominal distension. At this stage the temperature rises, the pulse quickens, and the child soon becomes dehydrated, with sunken eyes and signs of collapse. The apex of the intussusception may sometimes be palpable per rectum, or may even project beyond the anus.

Intussusception may arise as a complication of other diseases. I have already mentioned its occurrence as a rare complication of enteritis. It may also arise as a complication of Henoch's purpura, and as this disease is accompanied by the passage of blood, and also sometimes by the presence of a palpable abdominal tumour, one can readily understand the difficulty at times in diagnosis. Henoch's purpura, however, occurs usually in children of 5 or 6 years of age, and complete intestinal obstruction does not result ; but the fact remains that intussusception may occur as a complication in Henoch's purpura.

Intestinal Obstruction following Reduction

Where laparotomy has been done to effect reduction of an intussusception, especially where a mid-line or paramedian incision has been used, adhesions between the omentum and the abdominal incision, or between a loop of small bowel and the peritoneal surface of the incision, may occur. In all cases which I have investigated, when a second operation has been performed for the treatment of a recurrent intussusception adhesions have been present. If the small bowel becomes adherent, intestinal obstruction is apt to occur later on in childhood, because, as the child grows, there is likely to be unequal growth of the portions of the bowel above and below the adherent section, producing intestinal obstruction later on.

A female child, aged 10 years, was sent to hospital as a case of appendicitis. The appendix was removed, although it did not appear to be very inflamed. Symptoms of intestinal obstruction were present the following day, and the child died. Post mortem a loop of small bowel was found to be adherent to an old abdominal incision made when the child was 6 months old for the cure of an intussusception.

I have several times seen intestinal obstruction cause the death of children who had been operated on in infancy for intussusception. I have also seen intestinal obstruction caused by the contraction of the scar tissue which resulted from the healing of a ring ulcer which followed the reduction of an intussusception of several days' duration. Such a case was reported by me in the *Medical Journal of Australia* (March 28th, 1931, p. 378).

Treatment

There are two methods of reducing an intussusception: one by operative treatment and the other by injecting fluid into the bowel per rectum.. Most authorities maintain that, under modern conditions, operative treatment is so safe that any other method is not worth considering. There is no doubt whatever that an intussusception can be completely reduced by injecting saline solution into the bowel, as I have tried the method out in a consecutive series of 159 cases, and reduction occurred in no fewer than ninety-six of them (60 per cent.). In only sixty-three of the cases did injection fail to reduce the intussusception, and in many of these reduction of the unreduced portion was so easy at operation as to make it evident that if a more persistent attempt had been made with the injection a much larger proportion of the cases would have yielded. In sixty-four of the cases I was quite sure that reduction had been effected, and the children were returned to bed without any further treatment ; but in thirty-two I made a small incision of the gridiron type, similar to the one commonly used in removing an appendix, so as to make quite certain that no portion of the intussusception remained. There was not one single instance in the sixty-four reduced cases where a mistake in the diagnosis of complete reduction was made, so that there is no necessity to condemn this method on the ground that one cannot be sure that reduction has been effected.

Two other surgeons at the Children's Hospital reduced thirty-nine cases out of eighty-eight, and out of these twenty-three were sent from the operating table without operation. Thus in these small series of cases we can claim that eighty-seven infants were saved the risk of a major operation with its not inconsiderable mortality.

Use of Hydrostatic Pressure

Technique.—A general anaesthetic is given. One must on no account use a Higginson syringe for the injection, as it is impossible to gauge the pressure by this means. A definite pressure is obtained by using a column of water from a height of three feet six inches. An ordinary douche can is quite satisfactory for the purpose, although it is better to use a glass vessel, in which the upper level of the column of water can be readily observed, and this must be not more than three feet six inches above the level of the table on which the child is lying. A few feet of rubber tubing and a large rubber catheter are connected with the glass container, and the catheter is inserted into the rectum for about two or three inches. The buttocks are pinched together around the catheter, so that no fluid escapes during the injection. It is important not to use any lubricant on the catheter, as it makes it more difficult to hold it in the rectum if the buttocks are slippery. The saline is allowed to run into the bowel for three or four minutes, and after disconnecting the catheter the saline is returned into a bedpan. A second and then a third injection are given, the whole process taking about ten minutes. The first return usually contains blood, the second is clearer and may contain a few specks of faecal material, and the third more faeces and perhaps flatus, both facts indicating a probable reduction.

The actual diagnosis of reduction depends on the fact that some of the saline has passed through the ileo-caecal sphincter and distended the small intestine, and in so doing produces a very decided distension of the abdomen. If the circumference of the abdomen is measured before and after the treatment there will usually be found to be a difference of from one and a half to two inches—that is, after all the saline has been drawn off from the large bowel. Owing to the fact that intussusceptions do not usually cause distension of the abdomen for a considerable time—usually for over twenty-four or forty-eight hours—it is generally quite easy to palpate the tumour before the injection is given. When the abdomen has become distended by the passage of the fluid into the small bowel the tumour has of course disappeared, but it would be impossible to feel a tumour if one were present. There are cases, however, where the tumour has been reduced, but for some reason the saline does not pass into the small bowel. In these instances one can feel the thickened ileo-caecal region, which had formed part of the intussusception, and as it is impossible to distinguish between this oedematous bowel and an unreduced intussusception one must make a small incision to verify the fact of reduction.

It is a good plan in cases where one has decided against operation to give the child about one teaspoonful of powdered charcoal before it leaves the operating table. This can be administered through a small catheter, which is passed into the stomach. An enema given four or five hours later will usually contain the greater part of this charcoal, and thus quite definitely establish the absence of intestinal obstruction. One great advantage of this

method is that one seldom needs to use any other incision than the lateral gridiron one. This incision is an easier one to close without running the risk of adhesions, and even where complete reduction has not occurred there is nearly always sufficient reduction to make it possible to deal with the unreduced portion through the incision. Moreover, should it be necessary to make a temporary enterostomy the right iliac region is a better position for it than the middle line. There is also less handling of the bowel and less chance of its prolapsing through the incision. I have tried using a thin barium solution, and then taking an *x*-ray instead of using saline solution, but I have not found any advantage in this method.

Operative Treatment

In the following conditions an open operation will be necessary.

1. When there is no definite proof that complete reduction has been effected, as where the thick oedematous bowel can still be palpated after the injection.
2. When the partially reduced intussusception can be felt.
3. In long-standing cases, when it is difficult or impossible to feel the tumour either before or after treatment.
4. In cases in which the intussusception has recurred.
5. In the subacute and chronic cases, which usually occur in older children or adults, and where a polypus may have been the cause, or where the intussusception may have started in the appendix.

Although a right muscle-splitting incision can be used in the majority of cases, especially where hydrostatic pressure has been employed, a middle-line or paramedian incision should be used in all cases where the intussusception is a large one, extending possibly into the descending colon. Some of the reduction can be effected without withdrawing the tumour from the abdomen, and even if withdrawn, it will have to be returned inside the abdomen to reduce the portion in the splenic and hepatic flexures. The actual reduction is effected by squeezing the tumour so as to force the intussusceptum from the intussuscipiens in a retrograde direction. Where reduction of the last portion is difficult it can sometimes be hastened by enclosing the tumour in a warm moist sponge and manually compressing it for a few minutes ; gently dilating the neck of the intussusception by inserting the little finger through it alongside the entering layer will also help reduction. Although efforts at reduction by attempting to pull the intussusceptum from the intussuscipiens are usually not advisable, the last portion may have to be reduced in this manner, or by alternately squeezing the tumour and then gently pulling on the entering bowel.

Treatment when Reduction is Impossible

It is difficult to decide just when to discontinue attempts at reduction, because the bowel is seldom actually gangrenous, even in long-standing cases, and the mortality after resection is extremely high. It is therefore well worth while making a fairly long attempt to reduce by manual pressure, provided this does not result in a complete tear through the bowel wall because it is impossible to suture such a tear satisfactorily. As a number of cases have been reported in which lateral anastomosis, leaving the unreduced portion *in situ*, has proved successful, it is well worth a trial where it is obvious that the infant will not stand resection. There are two other methods: resection, followed by temporary enterostomy ; and temporary enterostomy and retention of the intussusception. Very rarely indeed does the infant survive either of these measures, but desperate cases may occasionally be saved by resorting to one or other of them.

Where an intussusception has recurred one may prevent a repetition of this either by fixing the caecum to the peritoneum low down in the right iliac fossa, after removing the appendix, or by shortening the mesocolon by the method usually employed in dealing with a mobile ascending colon.

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INDUCTION OF LABOUR

BY

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While the normal cause of the onset of labour remains a mystery, generations of obstetricians have longed for a safe and easy method of terminating pregnancy. Much ingenuity has been expended and many methods have been devised for bringing this about. Labour can sometimes be started by using drugs such as castor oil and quinine. This method has been extensively employed for some years, but it is too unreliable to be of much real value. Other methods almost universally practised rely upon the introduction into the uterus of some foreign body. A hydrostatic bag, bougies, or a stomach tube may be employed. There are obvious objections to such treatment. The onset of labour is uncertain and may be long delayed, when the presence of a foreign substance within the uterus is more likely to prove a source of infection with each day that passes. There is always great discomfort and usually much pain from the pressure within the cervix. The stomach tube is probably the most painful, and much misery may be caused in this way, an unfortunate introduction to the ordeal of labour to come. The bag may come out as the cervix dilates, when the commencing labour will probably cease. The passage into the uterus of the bougie or tube may cause furious haemorrhage which is alarming, though I myself have never seen any real harm result from this cause. For these reasons, and also because an anaesthetic is required during the introduction of the bag, bougie, or tube, induction of labour in this way is necessarily employed only in an emergency of some gravity.

Simple Rupture of the Membranes

Induction by simple rupture of the membranes carries the authority of considerable antiquity. It was practised towards the end of the eighteenth century. Later it fell into disrepute, probably upon theoretical considerations owing to the importance attached to the bag of membranes as a factor in dilating the maternal passages. Nevertheless, it is mentioned by such writers as Ramsbottom and Smellie. More recently it has been advised in many textbooks, but paradoxically only in certain morbid conditions, of which the most important are antepartum haemorrhage and eclampsia. The method has lately been revived, and indeed it is difficult to understand why its more extended application was not suggested long ago. There is already a considerable literature, and careful reports have been published by Fitz-Gibbon[1] and Morton[2] on series of normal cases, by Berger,[3] who used it principally in post-mature cases, and by Stroganoff,[4] who clearly demonstrated its benefit in eclampsia. In spite of much careful work induction by rupture of the membranes is still looked upon with disfavour by a majority of practitioners, but it certainly approximates closely to the normal onset of labour. Of 150 consecutive cases of normal labour admitted to the

Woking Maternity Home, in forty-four (27 per cent.) rupture of the membranes had occurred before admission, usually as the first sign of the onset of labour. The frequency with which this occurs is not always appreciated.

The method provides three advantages of great importance:

1. No anaesthetic is required in a very large majority of cases.
2. The patient feels no pain and can get up and behave normally until labour starts.
3. There is no foreign body in the uterus and consequently no nasty discharge and little (if any) increased tendency to the development of a morbid puerperium.

In the following analysis of 115 cases I hope to confirm the excellent results already reported by the writers referred to, and to show that rupture of the membranes, as a method of inducing labour, provides a great advance upon the procedure usually adopted, and that it may be applied with success in a wide variety of conditions. In all these cases the induction was performed by myself, and in a majority I was able also to supervise the patient afterwards when medical attention was required. The methods employed, therefore, have been as nearly as possible uniform throughout the series, and the results are not confused by differences in technique and after-treatment.

Method of Induction

The method adopted throughout the series is as follows. A preliminary dose of castor oil is given whenever possible. The patient may lie on an ordinary bed, but an examination couch or operating table is more convenient. An ordinary vaginal examination is made to confirm the presentation and to estimate the degree of disproportion, if any. The middle finger is then passed along the cervix until the presenting part is reached. A pair of small peritoneum forceps (Rutherford Morrison's) is then passed along the finger into the cervix, opened, pressed against the presenting part, and closed. The membranes are thereby caught up and can be broken with the finger, which is still in the cervix. The head of the foetus must be supported by an assistant or it will retreat when the forceps come against it. The whole operation takes about two minutes. The cervix is usually directed strongly backwards, and must be hooked up and straightened out with the finger. In primiparous women this little manœuvre requires some practice, but it is always perfectly easy under an anaesthetic. Sodium evipan is very suitable and was often used, but in the later cases no anaesthetic has been required. In one patient the cervical canal was too narrow to admit a finger, and dilators were needed, but this must be most exceptional. The only preparation adopted is a simple wash down, twice repeated after the perineum is shaved. No vaginal douche is used. The rupture should be followed by a definite gush of liquor. If only a few drops escape it is probable that the chorion alone has been torn. A few hairs from the baby's head provide good evidence of efficient technique.

This procedure is extremely simple and quick. It is also practically painless. In district practice the patient can be sent home to have the baby, which is an advantage when beds are full.

Indications for Induction

In this series the indications for induction may be grouped as follows:

Diabetes	1
Cardiac breakdown	2
Hydrocephalus	1
Chorea	2
Pyelitis	5
Toxic A.P.H.	1
Mild toxaemia, hyperpiesis, etc.	24
Grave toxaemia and eclampsia	7
Disproportion, bad obstetric history, etc. ...	68
Breech with legs extended	4

Without discussing at length the possible indications for inducing labour, I should like to call attention to three common conditions in which rupture of the membranes has given very satisfactory results.

1. It is common to find women at term who complain of backache and general discomfort, which may persist for two or even three weeks before labour begins. This is distressing for the patient and embarrassing for the medical attendant. Rupture of the membranes in these cases is usually quickly followed by the onset of pains and usually a rapid labour.

2. A breech presentation after version will sometimes recur, especially if the pelvis is small. When this happens and the child is a good size, rupture of the membranes may be done after version, and this will maintain the vertex presentation.

3. Cases of mild toxaemia are common, and each contains the elements of a tragedy. Grave developments may supervene with dramatic violence and cannot always be foreseen. Rupture of the membranes before term provides an easy way of terminating the pregnancy and of saving the patient from two or three weeks of exceptional danger.

Onset of Labour

The exact moment when labour starts is often difficult to determine, but the series is analysed as accurately as possible in the following table:

Onset in	Primiparae	Multiparae
1–6 hours after rupture	28	23
6–12 ,, ,, ...	14	14
12–18 ,, ,, ...	5	6
18–24 ,, ,, ...	10	3
24–48 ,, ,, ...	6	3
Over 48 ,, ,, ...	1	2

It will be seen that contractions begin within six hours in nearly half the cases (47 per cent.). No fewer than 85 per cent. come into labour within twenty-four hours, but occasionally a patient will have no pains for two days or longer. I have never been able to recognize the factor which accounts for this. There is no real difference in this respect between primiparous and multiparous women, although delayed onset of labour is perhaps slightly more common in the former.

The stage of pregnancy, whether at term or premature, is apparently of no importance. In my experience this condition is really exceptional, and delay in onset usually means that the membranes have not been ruptured and no liquor will be found on the pad.

Uterine Inertia and Instrumental Delivery

If any method of induction is to be of real value it must be followed by normal uterine action. The duration of labour in the present series is given in the following table:

Length of Labour	Multiparae	Primiparae
1–6 hours	26	12
6–12 ,, ...	18	17
12–18 ,, ...	5	15
18–24 ,, ...	2	12
24–48 ,, ...	—	5
Over 48 ,, ...	—	3
Forceps delivery	1	11

When the membranes are ruptured and pains commence they are often indefinite and annoying for some hours before any useful result is produced (niggling pains). In rare cases this state of things may persist for as long as five days, and it seems particularly apt to occur in primiparae. In the opinion of the maternity home staff these niggling pains are at least no more troublesome or frequent than in the case of women who start labour without interference. It has even been suggested that regular pains start more rapidly after the membranes have been ruptured, and this is my own impression. It is most

difficult to produce any definite evidence from the labour ward notes upon this point. There is no doubt, however, that when the pains are once established the uterus works most efficiently, and it does not appear that premature rupture of the membranes interferes in any way with the course of labour. On the contrary, the labour ward staff are unanimous in declaring that labour progresses with unusual ease and rapidity. This rather surprising fact was noted also by Morton, who states that the duration of labour is approximately halved if the membranes are ruptured artificially. Few will deny that the duration of labour shown in the table above is well within normal limits, and the low forceps rate is also satisfactory. The results in this respect are even more striking when it is recalled that a majority of the cases in this series were derived from those referred to the Woking Maternity Home on account of disproportion, bad obstetric history, toxaemia, and similar conditions in which uterine inertia might reasonably occur. In this relatively well-nourished district genuine pelvic deformity is extremely uncommon, and during the past two years it has been necessary to perform only five Caesarean sections on this account. On the other hand, definite disproportion, usually the result of an overfed child in a small mother, is far from rare, and such cases are usually associated with a high forceps rate.

Puerperal Morbidity

Most methods of induction are associated with a high rate of puerperal morbidity, and it is worth while analysing that of the present series in some detail. Every case is included in the table below in which the temperature rose to 99° F. or more between the second and eleventh days. Many cases are therefore included which did not attain the gravity of notifiable puerperal pyrexia.

Maximum Temperature:	99–99.2°	99.2–100°	100–101°	101.2–102°	102.2–103°
Duration of pyrexia above 98.8° F.:					
1 day	9[1]	4[5]	2[9]	1[12]	
2 days	2[2]	2[6]		1[17]	
3 days	3[3]	2[7]		1[13]	
4 days			1[10]	1[14]	
5 days	1[4]	2[8]		1[15]	
7 days			1[11]		2[16]

1. Including one case of breech presentation with extended legs which required extraction. The rise of temperature in the others mostly occurred on the third or fourth day, and was possibly due to engorged breasts and constipation.
2. One case of difficult forceps, the other had painful hard breasts.
3. Including one case of forceps for persistent R.O.P. presentation.
4. Ruptured perineum with inflamed and sloughing piles.
5. Including one case with hard and painful breasts and one in which the temperature rose on the ninth evening for some reason.
6. Including one case probably due to hard and painful breasts, the other following a forceps extraction.
7. In both cases the fever coincided with the development of hard and painful breasts.
8. In one case following forceps the perineum much inflamed, in the other all the chorion was retained.
9. One case probably due to engorged breasts, the other followed severe eclampsia (thirty-five fits).
10. Following a difficult forceps extraction with lacerated and inflamed perineum.
11. Following an awkward face presentation with sloughing lacerations of the vagina and perineum. This was the only case in which the pyrexia gave rise to any real anxiety. Sent to Queen Charlotte's Hospital (Isolation) and returned with the report "mild puerperal sepsis due to sloughing and infected vaginal and perineal lacerations."
12. A single temperature spike as the breasts filled.
13. Following labour with severe toxaemia.
14. Following forceps delivery with lacerated and "messy" perineum.
15. Exacerbation of pyelitis.
16. One case of tonsillitis, the other a pyelitis which subsided within a week.
17. Bowel upset on fifth day from constipation, with abdominal pain and marked distension.

In addition to the above there was one fatality—Mrs. N., primipara, 22 years of age, a moderately severe case of toxaemia. Ante-natal treatment for ten days without much improvement. Condition was not good before labour, which started seven hours after induction and lasted fourteen hours to the birth of the child (low forceps). At this stage there was profound shock, with a pulse rate of 160. The placenta could not be expressed, and was removed eight hours later under chloroform anaesthesia. A contraction ring was present. The shock increased in intensity and she died fourteen hours after delivery. The total loss of blood was under one pint.

Whatever errors there may have been in the conduct and treatment of this case, which terminated in such a fearful tragedy, I cannot feel that the induction by rupture of the membranes was in any way to blame.

With regard to the cases of pyrexia, these total thirty-six in the whole series of 115 inductions. In a large number of these cases some abnormality was present before labour started or intervention was required during delivery. In order to estimate more accurately the influence of rupture of the membranes as a cause of pyrexia, I have made a further analysis of *all* the more normal cases in the series. The cases excluded comprise those in which manual or instrumental delivery of the child was required ; cases of gross laceration of the genital passages (first degree tears are *not* excluded), ante-natal toxaemia, and pyrexia ; and of independent pyrexial diseases (tonsillitis, etc.). Twelve of the remaining sixty-eight cases developed some degree of pyrexia, the duration and severity of which is shown in the following table:

Maximum Temperature:	99°	99.2°	99.4°	99.6°	99.8°
Duration of pyrexia:					
1 day	5	1	1[x]	1[x]	
2 days	1		1[b]	1[x]	
3 days					1[x]

In eleven cases the rise of temperature occurred on the third or fourth evening. Those cases marked by an "x" are noted as having hard and painful breasts requiring hot bathing. In one patient marked "b" the pyrexia was associated with abdominal discomfort and constipation. In all cases the baby was alive and vigorous and the maternal condition never caused the least anxiety. It is suggested that there is no evidence here that artificial rupture of the membranes under suitable conditions increases the tendency to pyrexia in the puerperium, and these results are in accord with the observations of all who have made an extensive trial of this method. In this respect it is also interesting to note that I have not been able to trace any relation between pyrexia and the length of time which elapses between rupture and the onset of labour.

Foetal Mortality

Early rupture of the membranes is commonly supposed to exert a prejudicial effect upon the child, but this has not been the experience of any of the authors referred to above. In the present series ten children were born dead, and this number is made up as follows:

Craniotomy	1
Non-viable	2
Macerated foetus	3
Stillborn	4

The last item is composed of the following cases:

1. Breech presentation with extended legs in primipara.
2. Diabetic. Child probably died just before labour.
3. Normal delivery of badly extended face presentation. Post mortem the foetus showed gross intracranial haemorrhage.
4. Forceps delivery with serious delay in birth of the shoulders. The foetal heart was vigorous just before the extraction was begun.

There is little evidence here that early rupture of the membranes exerts an unfavourable influence upon the child. The foetal head plugs the cervix, and even if the onset of labour is delayed for several days the liquor does not all drain away. In the so-called "dry labour" with slow progress the important factor is uterine inertia, unfavourable presentation, or grave disproportion. In the last two conditions the presenting part may not fit accurately the maternal passages, and the amount of liquor forced down may lead to early rupture of the bag of waters, which is the effect and not the cause of the conditions present. A number of patients in this series were submitted to induction at term, or shortly before, on account of bad obstetric history. In every case the result was most satisfactory. Labour progressed normally and in no single case did the child appear to suffer in any way.

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A NOTE ON ARTIFICIAL PYREXIA IN EPILEPSY

BY

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Many observers have reported improvement in epileptic subjects during the course of an intercurrent febrile illness. Guthrie[1] has reviewed 200 cases of epilepsy where records of convulsions had been noted for stated periods before and following an acute febrile illness: the chief feature of his analysis is the decrease in the number of seizures which occurred during the period of illness. Hamilton[2] noted a temporary improvement in nine out of eleven epileptics who contracted typhoid fever. Reduction in the incidence of fits during attacks of influenza have been reported by Gordon[3] and by Maillard.[4] These clinical observations find confirmation in the experimental work of Wortis,[5] who observed that animals having febrile infections are less subject to seizures when given standard amounts of convulsant drugs.

The beneficial effect of intercurrent fevers in epilepsy has suggested the use of malaria as a therapeutic agent in this disorder. Ramsay,[6] using induced malaria in six chronic epileptics, found a temporary reduction of fits in four cases; he concludes, however, that the induction of pyrexia by this agent is not free from danger. Arias[7] noted a decrease in the number of fits in eight out of twelve cases treated with malaria. Other authors have reported improvement following the use of protein therapy in epilepsy—Edgeworth[8] and Steel.[9]

Material Treated

In the present investigation pyrexia was induced over a twenty-day period by intramuscular injections of sulphur in oil, the preparation used being "colsul." The technique adopted was similar to that described by Schroeder[10] in the treatment of general paralysis and dementia praecox. The clinical material consisted of eight institutional cases of essential epilepsy, which were subject to frequent major seizures. The patients treated varied in age from 18 to 58 years, and in all cases the epileptic habitude was well defined, and some degree of mental deterioration was present. The number of seizures that were present for twenty-day periods before, during, and after fever treatment are shown in the table.

Case No.	Present Age	Number of Seizures		
		During Previous 20 Days	During Pyrexia (20 Days)	During Succeeding 20 Days
1	18	17	4	9
2	19	13	7	30
3	13	23	7	14
4	28	7	4	2
5	58	7	2	10
6	22	72	44	70
7	58	14	8	5
8	32	10	4	9

Results

In this series a reduction in the incidence of fits was found in every patient during the pyrexial period. The majority of seizures occurred when the temperature was falling or in the interval between attacks. In four cases the incidence of fits remained below the average for the twenty-day period following treatment; in three no definite improvement was noted, and in one patient an increase in the number and severity of attacks occurred during this period. With one exception the mental condition was favourably influenced during treatment, a result which can be regarded as of practical importance. Troublesome patients became more amenable, and showed no tendency to quarrel or complain. Fever attacks were well tolerated in all cases, and no unfavourable effects were noted. It has been stated that rest in bed is an important factor in limiting the number of convulsions in chronic epileptics.[11] In the present group no significant diminution in the incidence of fits was noted in seven cases, while one patient showed an increase in the number of seizures during a period of twenty days' rest in bed.

Conclusion and Summary

It is not easy to discover why fever should limit the number of fits in epilepsy. The association of certain physico-chemical processes with a reduction in seizures is now generally acknowledged. Chief of these are the establishment of acidosis, of dehydration, and of cerebral vaso-dilatation. It seems reasonable to assume that the value of fever in epilepsy is dependent on the operation of these processes.

To summarize: induction of pyrexia by "colsul" in eight chronic epileptics was accompanied by a temporary decrease in the number of seizures; improvement in the mental condition occurred during the period of fever.

I am indebted to Dr. J. Brander, medical superintendent, Colney Hatch Mental Hospital, for permission to investigate the cases reported in this paper.

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Clinical Memoranda

Congenital Hypertrophic Pyloric Stenosis in Uniovular Twins

The occurrence of this condition in uniovular twins seems of sufficient rarity and interest to merit record.

First Twin

History.—P. W., a male infant aged 3 weeks and 6 days, was admitted on November 25th, 1934, to the Harrow and Wealdstone Hospital. His weight was 5 lb. 8 oz. (birth weight 6 lb. 8 oz.), and there was a history of loss of weight and constipation since birth. The infant had been fed three-hourly on a Nestlé's milk mixture for the first week, then on "humanized trufood" three-hourly "according to the instructions on the tin." It had always been fretful and apparently hungry. At the age of 2 weeks 6 days vomiting had begun. This became worse two days before admission, and was then described as projectile.

Admission.—In hospital the infant was fed on a half-cream Cow & Gate mixture three-hourly. He continued to vomit at least two to three feeds daily, the vomiting being projectile in nature, though not markedly so, and he was very constipated. On December 4th a tumour was felt about half an inch to the right and one inch above the umbilicus. No peristalsis could be seen. At this time the infant was obviously wasting. Stomach wash-outs with normal saline were commenced immediately, and the following day a Rammstedt's operation was performed, typical pyloric hypertrophy being found. The weight at this time was 5 lb. 6 oz.

Post-operative Results.—After operation graduated feedings with Cow & Gate mixture were employed. An uninterrupted recovery followed, and the weight on discharge on December 22nd was 6 lb. 5 oz. The infant's general condition was now very good. After discharge progress was well maintained, but on January 7th, 1935, sixteen days after discharge, the infant was found dead in the morning; the previous evening he had appeared perfectly well. On post-mortem examination it was found that the obstruction had been relieved by operation; the cause of death was an acute thymitis.

Second Twin

History.—M. W., a male infant, the twin brother of the first case, was admitted to hospital on December 5th, 1934, aged 5 weeks 2 days, weighing 6 lb. 5 oz. (birth weight 7 lb.). His feeding had been similar to that of his brother, and after admission he was fed on a half-cream Cow & Gate mixture. There was a history of constipation since birth and vomiting from the age of 10 days. The latter had not been so marked as in the other case, and the loss of weight had been less. The vomiting was again described as projectile.

Admission.—Following this he vomited after each feed, but not in a markedly projectile manner. A tumour was felt on December 7th, but in this case also no peristalsis was seen. His general condition at this time was moderately good, being considerably better than that of his brother just before operation. In view of his brother's history stomach wash-outs had been given since admission. On December 9th a Rammstedt's operation was performed, a typical pyloric tumour being found. After operation his feeding was similar to that of his brother.

Post-operative Results.—Convalescence was uneventful, and the infant's weight on discharge on December 22nd was 7 lb. 4 oz. His general condition was very good.

The interest in these cases lies in the fact that they were uniovular twins. The parents are not in any way related, and there are two other healthy children in the family, aged 15 and 12 years respectively.

I am indebted to Dr. Thomson, who kindly furnished details of their early history, and I should like to thank Dr. Bailey, Dr. Tallerman, and Mr. Julian Taylor, under whose care they were while in hospital, for permission to report these cases.

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Reviews

PATIENT AND DOCTOR

I cannot remember how many books I have read whose object was to satisfy the natural curiosity of the public about the working of the medical machine and what doctors themselves think of their relations to their patients and to the community. The number is large and their values vary. But I have never read one before which was addressed with equal force to both patient and doctor, and offhand I should have said it couldn't be done. This book does it, though it is primarily addressed to the layman. It is *sui generis*, and the appeal to first principles which permeates it seems to me to give it a place amongst the books which one keeps and reads. No reader can fail to be impressed by its urbanity, its knowledge, and its wisdom.

The title is significant: not "Doctor and Patient," but *Patient and Doctor*.[1] It has been said that the chief characteristic of all economic discussions in this country is that the consumer is always given primary consideration. On every page of the book Sir Henry Brackenbury shows that his experience of public and professional affairs has convinced him that if you want to advance the best interests of your profession you must convince the public that that profession exists for its advantage. The primary appeal of the book, then, is to the layman—not the man in the street, but the man who, with neither the time nor the inclination to explore the intricacies of a profession with which he is bound to come into intimate contact, yet has a genuine desire to understand the doctor's point of view, how his work is done, and what he thinks of his relations to his individual patients and to the community. Such a reader will find his desires amply satisfied by this book—far more so than could be predicted from its size. It is a model of condensation, yet easy to read. The most impressive things about the book are its studied moderation, its persuasiveness, its obvious desire to be fair, and its logical procession from one point to another. As a specimen of continued judicious understatement (generally, in my opinion, the most effective form of argument) it is a great achievement.

The temptation to mention each chapter and to fill this review with quotations is great. Every chapter is full of "meat" for both parties concerned. That on the "Relation between Patient and Doctor" is particularly good. And if it were possible to believe that pressmen ever had time to read anything one might even hope that at long last our newspapers would cease to confuse the B.M.A. with the G.M.C. At any rate it should be made compulsory on every sub-editor to read the first part of the chapter on "The State and the Doctor." Every section of our profession comes under review, and while they all have justice done to them one is not surprised to find that Sir Henry Brackenbury, who has always carried high the flag of the family doctor, is especially good in dealing with his difficulties, his problems, and his value to the community. The following quotation summing up the arguments on the use of "clinics" in municipal medicine is a good example of his style and gift for compression:

> "They [clinics] have so far been almost entirely isolated from and unconcerned with medical education and research; they have tended to create or foster a somewhat narrow outlook on the field of medicine; they have a tendency to dissociate their work from that of the family doctor and to forbid or militate against those features of general practitioner service which it is of paramount importance to preserve; they

[1] *Patient and Doctor.* By Sir Henry B. Brackenbury, M.D., LL.D., M.R.C.S. London: Hodder and Stoughton. 1935. (Pp. 280. 5s. net.)

are obviously extremely limited both as to the field of medicine which they cover and as to the fullness of the service within that field. There are various influences at work which favour the staffing of such clinics by whole-time salaried officers . . . the clinic system therefore really satisfies none of the essentials of a satisfactory general medical service for the community."

His epigram on the difference between the respective spheres of the public health officer and of the family doctor seems to me admirable and just. "Put in a sentence, the public health medical officer is always dealing with the individual for the sake of the community; the general practitioner is always affecting and helping the community through the individual." The layman will find his rights fully stated and defended. Dealing with complaints as to doctors' "mistakes," and after explaining how it is that such mistakes cannot always be avoided, the author sums up:

"In the practice of medicine some lack of knowledge or imperfection of skill, some erroneous inference or minor error of judgement, has occasionally to be recognized, understood, and forgiven. He is in these respects the best doctor in whose case these things happen most seldom. What a patient has a right to expect . . . in every instance is carefulness in making a complete and thorough investigation into his condition. Gross negligence in this direction is, as I see it, the one and only thing which can justify the bringing of a legal action for malpraxis against a doctor; and short of such legal action it is impossible to blame a patient who takes a serious view of such a failure."

I should have put it more strongly, but that is Sir Henry Brackenbury's way, and a very effective way. As one might expect, knowing his interest in psychology, he is emphatic on the necessity of considering the whole man. "It is never the body only which is out of health, but always the complete being." While in obvious sympathy with the view that it is the duty of the community to provide in health matters all that the individual cannot provide for himself, the author is not in favour of indiscriminate help. "That the community should provide everything for everybody, so that each individual member of the community can demand everything as a right, may be a perfectly respectable, even logical ideal, but to many people it seems a little bleak and arid." This occurs in the chapter on "Patient and Hospital," and leads up to a defence of the voluntary system as something the community would do well to preserve. This chapter also contains a vindication of the right of hospital doctors, even in voluntary hospitals, to be paid, which I think might have convinced even my old friend Lord Knutsford—I can't put it higher than that. And the examination of the abuse of out-patient departments deserves the serious attention of every member of a hospital governing body and staff, not to mention the subscribers, whose money is often being wasted.

The final chapter on "The Training of the Doctor" brings to bear on a particularly difficult question the wealth of experience Sir Henry has had in general educational affairs. And it also proves that he has mastered the voluminous literature of this special department. His conclusions are set out clearly and attractively. The only fault I can find in the book is that it is too short. I should have welcomed the development at greater length of several of the points made. But one can't expect everything in a book of 280 pages, and to have lengthened it would probably have defeated the author's object, which is to reach a wide circle. If I were a wealthy man I should put a copy into every library in the country. If I were in practice I should recommend all my patients to read it. And I suggest that it would be the best book of its kind to put into the hands of every newly qualified man and senior student.

Alfred Cox.

OPHTHALMIC NURSING

The recent advances in ophthalmology, more particularly in the treatment of detachment of the retina, the development of orthoptic training, and the extended use of ultra-violet light therapy and diathermy, have necessitated the rewriting of parts of Maurice Whiting's book *Ophthalmic Nursing*[2] and the addition of much new material. Any book of this nature must bear the imprint of the author's method and the stamp of his hospital practice. In this case Mr. Whiting's methods are particularly practical and the nursing at Moorfields Hospital is of a very high order.

The volume covers a wide field. The chapters on the anatomy of the eye and its adnexa are reduced to a compass which, without omitting essentials, is well within the scope of all nurses. A short description of physiological principles and optics paves the way for a discussion of optical defects. This logical sequence is adopted in the account of micro-organisms and their relation to disease, followed by the principles of asepsis and antisepsis. The systematic examination of the various parts of the eye forms an introduction to chapters on diseases and injuries and their treatment, particularly those methods of treatment which a nurse will be expected to be capable of carrying out. The section on operations includes instructions for preparation of the patient, the eye, dressings, instruments, the theatre, and a bedroom when the surgeon has to operate outside a theatre. These descriptions of operations, and lists of instruments required in each, will be found of the greatest use. The rules for the nursing of various operation and non-operation cases are most helpful, and nurses who intend working in school refraction and treatment clinics will find all their difficulties solved.

A SURVEY OF BIOCHEMISTRY

To write a review of a review is a difficult task, and the *Annual Review of Biochemistry*,[3] which has now reached its fifth year of publication, is not a volume of a sort with which it is easy to deal. Its purpose is to furnish an annual, or in some cases a biennial, survey of the work published in different fields of biochemical research. In all, twenty-seven such fields are chosen, and in every case the reviews are written by workers who are actively engaged upon the problems about which they write. It is the known intention of the editors to vary the scope of the reviews as occasion demands, and at fairly frequent intervals to change the personnel responsible for writing the articles. Biochemical literature is now so extensive that undertakings of this kind, if properly carried out, can be an enormous help to those engaged in research. Since the present reviewer is himself a contributor to the volume, he feels some diffidence in passing an opinion on the merits of the work; he ventures to think, however, that it is done as well as circumstances permit—"circumstances" in this case being rigorous limitation of the length of each article, which is very properly enforced by the editors. To the casual reader the reviews of subjects with which he has little acquaintance probably seem rather crowded, and perhaps difficult to follow. The reason for this is that (except, at any rate, in the first volume) the contributors, in order to cover in a reasonably critical way the work published during the current year, have had ruthlessly

[2] *Ophthalmic Nursing*. By Maurice H. Whiting, M.B., B.Ch., F.R.C.S. Second edition. London: J. and A. Churchill, Ltd. 1935. (Pp. 191; 54 figures. 5s.)

[3] *Annual Review of Biochemistry*. Edited by James Murray Luck. Vol. IV. California: Stanford University Press. 1935. (Pp. 639. 5 dollars.)

to cut out any introductory matter ; they have had to assume that their readers are already *au courant* with the general lines of research in the subject, and will use the review, for the most part at any rate, to rectify omissions in their own reading, and perhaps to gain from a bird's-eye view something which they would have missed had they had all the papers at length and one by one.

Naturally there is some overlap between the several reviews, and this is valuable, since a given paper may be dealt with by two reviewers from different standpoints, so that the reader obtains a sort of " cross bearing " on certain important points. Again, the principle of change of authorship allows large and important subjects to be treated from time to time from quite different points of view—this year, for instance, the article on proteins and amino-acids deals chiefly with physico-chemical aspects of the problem, while the same lack of rigidity in editorial policy has permitted the inclusion of an article on " Choline and Allied Substances," which is particularly welcome in view of the recent physiological discoveries of the role of choline esters in the functioning of the autonomic nervous system.

The writer of these lines believes that the *Annual Review of Biochemistry* can be of real use both to active workers in the field of biochemical research and to those who, while not actually working at biochemical problems, wish to obtain a general notion of the type of work that is being done at any given moment.

DISEASES OF THE THYROID

The third edition of Dr. ARTHUR E. HERTZLER'S book on *Diseases of the Thyroid Gland*[4] has afforded him the opportunity of rewriting and amplifying his arguments in the light of further observation and follow-up of his patients. The book itself is well produced, and now has an addition of ninety pages and thirty illustrations compared with the second edition, reviewed in our columns in August, 1929. His further experiences have established the views therein stated. The essential one is that goitrous disease is a continuous process, although it passes through several phases, and the usual termination is a cardiac death. The early phases may be found in adolescence, and it has been too little appreciated that the thyroid gland is of much more importance to the developing than to the mature individual. In young adults the bosselated or non-toxic colloid goitre occurs as an extension of the simple colloid goitre seen in childhood. The gland may become nodulated, or may show toxic symptoms at any time in its course without much variation in the gross appearance. The author does make a distinction still of this toxic adenoma from acute toxic goitre of Graves's disease. The colloid goitre may later show various degenerative conditions. Descriptions of these phases of goitre are given and attempts made to diagnose them differentially.

Thus, though the author believes in and states the unity of goitrous disease, his methods of statement might confuse the student or hurried reader. Modern teaching in this country has emphasized the essential unity, recognizing that in any one gland which has become diseased portions can be found showing varied changes which have led to differentiation on pathological grounds. Of course, foetal adenoma and carcinoma belong to quite another group. Dr. Hertzler's experience has tended to more and more radical operation, culminating in complete thyroidectomy in certain selected cases. The statement will not be accepted, however, that cachexia strumipriva does not follow complete removal in adults but only in adolescents. Too much stress should not be laid on the basal metabolic rate. The author's position in most cases appears to be that a condition is present which will advance in gravity and cause heart disease, therefore early operation is advisable lest worse befall. The operative technique is fully described and well illustrated. The author's breadth of view is shown by the aphorism that the majority of operative failures come from trying to cure family rows by removing a simple colloid goitre.

[4] *Diseases of the Thyroid Gland.* By Arthur E. Hertzler, M.D. With a chapter on Hospital Management of Goiter Patients by Victor E. Chesky, M.D. Third edition, entirely rewritten. London: Henry Kimpton. 1935. (Pp. 348 ; 181 figures. 32s. net.)

SCHOOL HYGIENE

Modern School Hygiene,[5] by Dr. R. GAMLIN of Liverpool, an experienced school medical officer, is an excellent manual which will be most useful to those who lecture to training college students, and to everyone engaged in teaching. The book is well printed and well written, and the excellent illustrations, of which there are ninety-eight, are carefully chosen. The various subjects are treated in a thoroughly practical manner—for example, in the chapter on food, after discussing the question of chemical composition, the construction of a dietary is described, followed by statements on preservation, the diseases conveyed by food, and the dangers of too much and too little food ; the chapter on alcohol is also a clear and sensible statement, which includes a warning with regard to the use of cocktails and discusses the danger of taking stimulants before driving a motor car. The latest reports of the Board of Education are extensively quoted in the chapters on partially sighted children, malnutrition, open-air schools, the prevention of infectious disease and allied topics.

The book is provided with a useful glossary, a bibliography, and a good index. It is a manual which should be in the library of every school medical officer and every school teacher.

Notes on Books

A Summary of the Treatment of Fractures and Dislocations has been prepared by Mr. R. BROOMHEAD. This pamphlet (Leeds, Henry Walker, 3s. 6d.) consists of brief notes on normal treatment. It would be of use to anyone giving instruction on the subject, and to students to remind them of the instruction they have received. It will be welcomed by all those who like to have their information in tabloid form.

We have received a copy of the proceedings of the Fifth Argentine Congress of Medicine,[6] which was held at Rosario in September, 1934. It contains 124 papers, of which twenty-four are devoted to general surgery, eighteen to orthopaedics, and eighty-two to gynaecology and obstetrics.

In his autobiographical work entitled Annual Rings,[7] Dr. A. E. HOCHE, formerly professor of psychiatry at Freiburg University, gives an entertaining account of his activities as a student: first at Berlin, with sketches of his teachers du Bois-Reymond, Helmholtz, and Hofmann the chemist, and later at Heidelberg, where he studied under Erb the neurologist and Czerny the surgeon, followed by a description of his experience as assistant to Fürstner, professor of neurology at Strasbourg, and lastly of his life as professor at Freiburg. In addition to the autobiographical matter the book contains the author's more or less stimulating reflections on a great variety of subjects, including youth and old age, God, the life of the mind, happiness, and death.

[5] *Modern School Hygiene.* By R. Gamlin, M.A., M.B., B.Ch., D.P.H. London: James Nisbet and Co., Ltd. 1935. (Pp. 388 ; 98 figures. 7s. 6d. net.)

[6] *Actas y Trabajos.* Tomo V. Rosario: Talleres Graficos Pomponio. 1935. (Pp. 902.)

[7] *Jahresringe. Innenansicht eines Menschenlebens.* By A. E. Hoche. München: J. F. Lehmanns Verlag. 1934. (Pp. 298. M. 4.50 ; geb., M. 6.)

British Medical Journal

SATURDAY, OCTOBER 19th, 1935

THE HISTORICAL APPROACH TO MEDICINE

In the present issue of the *Journal* we print the inaugural address given at the University of Durham College of Medicine, Newcastle-on-Tyne, by Sir George Newman (p. 711), and a review of a recently published book by Sir Henry Brackenbury (p. 725). The address and the book, though directed to different objectives, may with advantage be considered together, owing to the striking similarity of their line of thought and their general conception of the attitude of mind towards his work that should be cultivated by a medical practitioner. Sir Henry Brackenbury's book is intended to expound the present outlook of medicine with a view to the cultivation of a proper relation of doctor to patient, both as individual to individual and as an organized profession to the community as a whole. The address is intended to suggest some readjustment in medical study, with a view to influencing the proposals for changes in the medical curriculum now under consideration. Nevertheless, the address and the earlier part of *Patient and Doctor* alike illustrate the value of a historical approach to the science and art of medicine, and Sir George Newman recommends that this method should find a definite place in the curriculum of medical schools.

With a wealth of illustration which is characteristic of his writings, Sir George Newman pleads that for the proper learning of the science and art of medicine there is necessary not only a scientific outlook, a preventive outlook, an outlook comprehending the whole of man's personality and environment, but a historical outlook also ; and claims that such a point of view is essential for "a scholastic foundation of cultural education," and that it alone, or at any rate most readily, leads to a full appreciation of the sociological and ethical aspects of medicine and of that "deeper affinity, the integration of medicine, the interrelation of its several parts in one whole . . . the total unity and mutual interdependence of scientific truth." There can be scarcely any doubt about the general truth of this proposition or opinion. It is possible to be a competent medical practitioner even with the very scantiest knowledge of the history of medicine ; but, within reasonable limits, a relatively full and detailed knowledge of that history not only adds immensely to the interest of medical study, but is really necessary to a proper understanding of many biological, physiological, and pathological problems of the duties of a medical practitioner in relation to the communal health, and of some of the fundamental social and ethical requirements of professional life. To supply this knowledge in due proportion and in sufficient degree, it would not seem to be necessary to tack on an additional subject—the history of medicine—to the already heavy medical curriculum. Sir George Newman has sometimes so stressed the importance of this teaching as to appear to imply that such a definite addition should be made, but he does not actually suggest this in his address at Newcastle. Just as attention to the preventive aspects of medicine should pervade the whole of medical instruction and study, so the historical approach to the considerations of physiological and clinical problems can be sufficiently inculcated and emphasized by its adoption in the ordinary course of lectures on physiology, medicine, surgery, and pathology, and by appropriate incidental references during practical clinical teaching. The fact that Sir Henry Brackenbury in one short chapter and Sir George Newman in an inaugural address are able to give a bird's-eye view of the development of medicine, to indicate its main periods and their general characteristics, and to particularize the chief reforms or contributions of the Hippocratic school, is enough to show that no systematic organized course of lectures on this subject is really necessary as part of the obligatory curriculum in order to make the historical approach to medicine an effective part of the student's training.

Sir George Newman says that "the integration and unity of medicine cannot be apprehended without a vigilant appreciation of the potential and kinetic value of its history." This is a valuable additional reason for the historical approach and method. Recent reports on the reform of medical education have insisted that to deal with the different subjects of the curriculum as though they were in separate compartments more or less rigidly divided off from each other is radically faulty, and that the course must be considered and dealt with as a whole. For this reason, as well as for others involved in the practical conduct of medicine as an art, the distinction of the three main branches of medicine (in the narrower connotation), surgery, and obstetrics, and of a number of specialties within these, is in danger of being carried too far. It is becoming of increasing importance that the essential unity of medicine as a science and of the medical profession as one organized whole should be reaffirmed and demonstrated. On all grounds Sir George Newman did well to say to the students in the University of Durham School of Medicine: "Your appreciation of history as a student and afterwards as a practitioner will be of inestimable pleasure and advantage to you, in work, in leisure, and in travel."

THE HEALTH OF THE PEOPLE

The annual report for 1934 of the Chief Medical Officer of the Ministry of Health[1] is the first to appear above the name of Dr. Arthur MacNalty, although, as he says, the work which it records was performed under the direction of his predecessor, Sir George Newman. The report is less bulky than usual, running to only a couple of hundred pages. In matters of health the statistical method is always inadequate and often misleading, yet in the health assessment of the forty million people of England and Wales statistics must be the principal recourse, however many the factors which they conceal rather than reveal. Concerning the cruder vital statistics, however, with which the first part of the report deals, the position is fairly clear. The birth rate for 1934, 14.8 per 1,000 living, was slightly above that for the previous year, but recent experience suggests that the annual number of births in England and Wales will soon be only half a million, as compared with not far short of a million at the turn of the century. The death rate, 11.8 per 1,000, was a little below that for the last three years, but above the figure for 1930 and for 1926. The infant mortality, however, 59 per 1,000 births, is the lowest yet recorded. In general epidemiology the year had no special significance, except for the increased number of notifications of scarlet fever and a high incidence of diphtheria. The insurance medical service calls for little comment in the Chief Medical Officer's annual review. It seems now to be running on very smooth rails, and its best testimonial is the paucity of complaints—only 161 brought before medical service subcommittees, and of those only one in four substantiated. The one note of criticism is the continued high cost of prescribing.

Two obstinate figures present themselves in the bills of mortality. The first is the number of women whose deaths are classed to pregnancy and child-bearing. The puerperal mortality per 1,000 live births was 4.60, virtually the same as in the previous year (4.51) allowing for the slightly increased number of births in 1934. One mother's life was sacrificed for every 221 children born, or, put in another way, 2,748 women died in performing the maternal function. The disquieting thing is the refusal of this figure to respond to improvement in the provision for maternal care and the enlightenment of the public conscience on the subject. It is true that the figure is inflated by the excessively high figures for a few areas, especially some Welsh counties and some Lancashire boroughs. The "black" areas are now being visited, and, what may prove equally useful, other areas are also being visited in which, though the rates are lower, the general circumstances are similar to those in the areas where the rates are exceptionally high. The figures for different areas are very perplexing. Why is the maternal mortality in Merthyr Tydvil (1,093 births) only 1.82, while in the neighbouring boroughs of Swansea and Cardiff (2,803 and 3,692 births) it is 6.06 and 7.31 respectively? The persistently high rate in Wales is the subject of special discussion in the report, and it is said that nowhere more than in the Principality do mothers need to learn the necessity for ante-natal care. The other unyielding figure is the cancer mortality. Deaths from cancer are again slightly up (1,563 per 1,000,000 living), which means that out of every hundred deaths at all ages thirteen are due to this disease, or, taking only the working life span, from 15 to 65 years, the toll of cancer is seventeen out of every hundred deaths. It is pointed out that the ability to diagnose cancer improves steadily, and on the reasonable assumption that the actual number of deaths has always exceeded the number certified, and that there is little, if any, increased prevalence of the disease, it seems possible that the peak of the mortality is being approached. Or, if not a peak, perhaps a plateau.

Some recent reports from Whitehall have been criticized on the ground that they exhibit too great complacency with regard to possible under-nutrition resulting from economic distress. The influence of unemployment or reduced family income on health is extremely hard to determine. As we suggested, in commenting on the Durham County investigation,[2] the results of which are recapitulated in the present report, there are factors of a depressing kind which nevertheless fail to make their appearance in health indexes. In a list of distressed areas, counties, and county boroughs the death rate is shown to be below the national average in at least half of them, and in several the infant mortality is lower than for the country as a whole. The comment is made, arising out of the Durham investigation, that even in the most distressed areas the measures taken by public authorities and the generous efforts of individuals have largely held in check the deleterious influences of unemployment. "At the same time the [Durham] report gives no ground for complacency. No inquiry can accurately evaluate the grave, indirect dangers to health of mind and body which prolonged unemployment involves, and the position is being closely watched." One thing desired is research into suitable tests which would serve as a means of ascertaining the normality of nutritional functions.

We shall have occasion in a later issue to describe in more detail some aspects of the Chief Medical Officer's report. In the meantime we may be allowed to express the hope that there will be a long series of such annual reports, progressively encouraging in character, from Dr. MacNalty's pen.

[1] *On the State of the Public Health.* Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1934. H.M. Stationery Office. (3s. net.)

[2] *British Medical Journal*, May 18th, 1935, p. 1037.

ACIDOPHILUS THERAPY

The group of bacteria known as the lactobacilli has acquired great prominence in the literature. Metchnikoff's elixir of life, by means of which the intestinal toxins were to be neutralized, was one of them ; but unfortunately the bacillus he chose, *L. bulgaricus*, was of animal origin, and did not flourish in the human intestine. Two forms, however, are capable of growth and, under suitable conditions, of multiplication and continued existence in human bowel contents. One of these, *L. acidophilus*, is of human intestinal origin, and has been accepted as playing an important part in the bacteriology and physiology of the intestine. The lactobacillus genus is widely distributed in nature, is primarily fermentative, and possesses but little proteolytic property. By fermentation of carbohydrates lactic acid is produced ; and one property which has attracted particular attention is the peculiar tolerance for free organic acids. The results of a recent study of the group and particularly of the human intestinal organism, *L. acidophilus*, are now published by the four authors, under the direction of Professor Rettger of Yale University.[1] It is pointed out that in order to obtain a significant and prolonged change in the bacterial content of the faeces towards the acidophilus side, cultures must be ingested of organisms from human origins. The cultures, when taken by the mouth, must contain viable organisms and the culture medium must be free from foreign organisms. It has been found necessary to sterilize the milk media in an autoclave under pressure, in order to kill off other organisms, and to administer the culture within a day or two and in large amounts. The authors demand a culture containing at least one hundred million bacilli per c.mm. and recommend cultures with eight or ten times as many organisms. The survival of the bacilli is limited, and after a few days the number of living organisms is reduced by at least one-half. They state that it is not necessary to change the diet at first, but to increase the lactose and dextrin in the food is useful ; and recommend that there should be a daily intake of a quart of the culture, spread over eight to twelve weeks, in order to obtain a satisfactory and persistent swing of the faeces to the acid side. Even then recurring courses of treatment should be given. They have found persistence of *L. acidophilus* in the faeces eleven to eighteen months after the close of the last acidophilus milk ingestion period. As well as experiments on human subjects under laboratory conditions, the authors have made four years' observations on patients with various forms of intestinal complaint. Seventy-five per cent. of cases of simple constipation yielded to the treatment. No drastic aperient was used, but an occasional enema was necessary. Even in cases of constipation complicated by gall-bladder disease an equal number of successful results were obtained. Cases, too, of mucous colitis or irritable colon were found to benefit by the treatment. A physician of great experience informs us that he has found similar useful results in patients with disorders of the colon, and can confirm the persistence of the organism in the faeces after courses of *L. acidophilus* ingestion. Much smaller amounts are usually enough, and by continuing to take a few ounces of culture twice a week the *L. acidophilus* remains the predominant faecal organism.

[1] *Lactobacillus Acidophilus and its Therapeutic Application.* By Leo F. Rettger, Ph.D., LL.D., Maurice N. Levy, M.D., Louis Weinstein, Ph.D., and James E. Weiss, Ph.D. New Haven: Yale University Press ; London: H. Milford, Oxford University Press. (11s. 6d.)

THE ELECTROCARDIOGRAM AND CARDIAC DISPLACEMENT

In view of the amount of space recently devoted to cardiology in these columns, some novel experiments conducted by W. B. Kountz and co-workers,[1] which throw light on the old and new interpretations of extrasystoles and bundle-branch block in the electrocardiogram, may not be without interest. During the last few years observations have been made suggesting that the conventional interpretation of the site of origin of these anomalies is incorrect, so that what was formerly regarded as a right ventricular extrasystole and right bundle-branch block should really be called left in both cases, and vice versa. Kountz and his associates first experimented on human bodies obtained immediately after death. The chest was opened, the heart perfused, and in eight instances the heart-beat was restarted with the establishment, sooner or later, of normal rhythm. Electrocardiograms obtained with ordinary limb leads showed normal curves in these eight cases. On separate stimulation of the ventricles the curves showed complexes of extrasystoles in harmony with the new interpretation. Cutting of the right and left branches of the bundle similarly gave curves in support of it. The results, however, were greatly modified by displacement of the heart, and it was only when the heart was in normal position that the site of a disturbance could be correctly localized from the curves. In a second series of experiments the perfused and normally beating dog's heart was introduced into the human pericardial cavity from which most of the human heart had been removed. Cardiograms taken by limb leads then gave curves similar to those obtained from the perfused human heart. The importance of this observation lies in the fact that ordinary cardiograms of the dog give curves *dissimilar* to those of man, and it was on these that the classical interpretation of the human cardiogram was based. The explanation offered for the discrepancy is that in the experimental dog, laid on its back and with the chest open, there is a considerable displacement of the heart, which is able to fall back towards the posterior wall of the chest. Finally, experiments were made on a series of monkeys, in which the chest contour is similar to that of man. The form of extrasystoles and bundle-branch block were again similar to those obtained in the human experiments. Studies on the effect on the curves of cardiac displacement to left and right showed right and left axis deviation, respectively, to be produced. From this it is surmised that the axis deviation of unilateral ventricular hypertrophy depends on deviation of the septum to the contralateral side. Observations on the effect of rotation of the heart showed that this also leads to axis deviation. This work seems to be significant in confirming the modern view of the electrocardiographic localization of premature beats and branch block, and in emphasizing that the position of the heart and its rotation must be

[1] *Amer. Heart Journ.*, June, 1935, pp. 605, 614, and 623.

taken into account in any interpretation; indeed, changes in these factors may make localization of premature beats and the site of the block impossible. The suggestion that displacement of the dog's heart under experimental conditions gave rise to fallacies in the interpretation of the curves, long surviving in the classical interpretation of the human cardiogram, is ingenious, and if confirmed may solve a long-standing problem.

POST-OPERATIVE CIRCULATORY DISTURBANCE

According to a recent paper[1] the pre-operative use of histamine injections, spread over a period of rather more than a week, promises to be of some value in the prophylaxis of this condition. Three Hungarian workers, Drs. S. Rusznyák, S. Karády, and D. Szabó, have succeeded, by means of injections of this substance, in distinguishing between certain types of blood pressure reactions. Those patients who reacted to the injections by showing certain characteristic changes in the blood pressure proved to be peculiarly liable to post-operative derangement of the circulation. After the intravenous injection of 0.005 mg. of histamine most persons show a brief fall of the systolic blood pressure, whereas those subject to post-operative circulatory disturbances react to such an injection with a fall of the blood pressure followed by an often considerable rise. Various attempts by the authors to combat this tendency to post-operative collapse by means of strychnine, ephedrine, etc., proved disappointing, and they found that alcohol promoted this tendency. Much more promising were the results obtained with a subcutaneous injection of 0.5 to 1 mg. of histamine twice a day for eight to ten days before an operation. This prophylactic measure changed the abnormal response to histamine to normal for a brief period, this abnormal reaction returning three to four days after the last injection. Though the authors cannot explain the mode of action of histamine in such cases, they have found it a valuable adjunct to the preparation of patients for operations, and they intimate that histamine may prove invaluable in a great variety of anaphylactic phenomena, including bronchial asthma and urticaria.

INCOME TAX RELIEF IN RESPECT OF CHILDREN

As our readers are aware, the Income Tax Acts provide for "allowances" of £50 per annum in respect of children who are under 16 years of age, or, being over that age, are receiving full-time instruction at a recognized educational establishment. We have been requested to comment on a scheme, which appears to have a considerable vogue, for obtaining greater relief than the statutory allowances provide. Briefly, the essence of the scheme is for the parent to make over to the child by deed the legal title to a fixed annual income. Incidentally, the amount of the income so transferred is usually limited to a maximum of £50, because if the child's income exceeds that amount the statutory allowance is forfeited. In fact, it is advisable to keep below the £50 limit, because otherwise the receipt of a few shillings from, for instance, a Post Office Savings Bank deposit in the child's name will bring the income over £50 and so nullify the effect of the scheme. A further point to be borne in mind is that where the transferred income is "earned" by the parent, it becomes "unearned" income in the child's hands and involves loss of the earned income relief. The scheme, however, does bring some advantage to the taxpayer even after paying a reasonable fee to the agent employed to prepare the necessary deed and deal with the annual repayment claim which the parent makes on behalf of the child in respect of the tax he deducts at the standard rate when paying over the income—very often to himself as the child's natural guardian. The maximum advantage is about £10 per child at present rates of tax, subject to payment of the appropriate stamp duties when the deeds are executed, which normally should not exceed a few shillings for each deed. There is a somewhat complicated section of the Income Tax Acts—Finance Act, 1922, Section 20—dealing with voluntary disposition of income, and for that reason it is advisable to employ someone in the preparation of the deed who has had special experience of this class of business. A correspondent has sent us a circular on the subject issued by a concern which claims to have had large experience in working this scheme, but probably most practising accountants are reasonably familiar with it, and are aware of the pitfalls to be avoided in preparing the necessary deed.

DINITROPHENOL CATARACT

The use of dinitrophenol in the treatment of obesity has gone to much greater lengths in the United States than in this country. A number of patent medicines, including one which rejoices in the name of "Slim," are flooding the market there, and an unexpected complication of their use is rapidly developing cataract. Attention to this complication of the use of dinitrophenol was recently drawn by Horner, Jones, and Boardman,[1] who reported several cases, and more recent reports assume something of the nature of an avalanche. One single issue of the *Journal of the American Medical Association* contains no fewer than four different reports dealing with six cases.[2] The histories given are fairly uniform. Young adult and middle-aged patients who have been taking dinitrophenol find after a time blurring of vision which rapidly goes on to blindness from complete lens opacity. In the early stages the lens changes are characteristic. Stippled polychromatic opacities develop in the subepithelial layer of the cortex, and many vacuoles under the epithelium are seen to protrude on the surface, thereby roughening it. Similar opacities are situated in the posterior cortex. When fully developed the opaque lens does not differ in appearance from senile cataract. Apparently the eye is not involved otherwise, but cases are reported in which peripheral neuritis developed as a result of the treatment, and it is therefore conceivable that retrobulbar neuritis might supervene. It would also appear that operative results for dinitrophenol cataract are satis-

[1] *Deut. med. Woch.*, July 12th, 1935, p. 1111.

[1] Horner, W. D., Jones, R. B., and Boardman, W. W.: *Journ. Amer. Med. Assoc.*, 1935, cv, 108.

[2] Cogan, D. G., and Cogan, E. C.: Ibid., 1935, cv, 793; Lazar, N. K.: Ibid., 1935, cv, 794; Kniskern, P. W.: Ibid., 1935, cv, 794; Allen, T. D., and Benson, V. M.: Ibid., 1935, cv, 795.

factory. One point that emerges from the study of these reports is that the cataract may develop some time after the patient has discontinued the treatment. Of interest in connexion with these reports is a note by Emanuel M. Josephson[3] on the use of vitamin C in this condition. Grounding himself on the work of a number of observers who have reported diminishing incidence of vitamin C in the lens with advancing age and in cataract formation, he has used ascorbic acid in all forms of cataract, and, while the results in senile cataract were gratifying, in dinitrophenol cataract improvement was surprisingly rapid. Other toxic symptoms of dinitrophenol poisoning, such as neuritis, also responded promptly to the ascorbic acid therapy. Josephson's preliminary report does not, however, give much detail, and it is difficult to judge whether this represents a possible medical treatment of senile cataract. Certainly it seems that the much vaunted and most recent of medical treatments—that by lens extract—is proving disappointing. Selinger,[4] who reports on the use of lens extract prepared from senile cataracts—as opposed to lens extract from clear lenses used hitherto—can only conclude that it has no more effect than the more classical lens extract.

IDEAL WATER

Many medical officers of health who are keenly interested in the bacterial content of the water supplies of their areas often view with apparent unconcern degrees of hardness in such supplies ranging from moderate upwards. The problem of hardness to their minds, while industrially of unquestioned importance, is hygienically, save in extreme cases, a comparatively minor issue. This attitude on the whole is perhaps warranted. Populations do become accustomed to drinking surprisingly hard waters, and as a rule no harmful effects can justly be held to follow. The aphorism of some years ago that any water which in point of hardness is accepted in the laundry is good enough for the household is nowadays as a working criterion only weakened by the circumstance that in many houses the appeal to the laundry can no longer be made, since the washing is sent out. Yet it is the case that even a moderately hard water, while not a health hazard, carries with it a number of more or less obvious disabilities from which softer waters are free. Much of the soap used with hard waters wastes its virtues in producing an insoluble curd, which by adhering to the skin hinders thorough ablution, or clinging to wash-basins has to be removed with force, which destroys their glaze. Linen in the wash needs severe rubbing, and discolours under the iron. Hot-water boilers, again, become coated with scale so that more fuel is required to heat them. In cooking, too, the green tint of vegetables is discharged and the fibre of meat hardened. Though these blemishes may seem insignificant in a water of high bacterial purity which can be drunk with safety and confidence so far as the risk of communicable disease is concerned, nevertheless the consumer takes notice of them and dislikes the water on their account, while the expert, who judges it by an exacting standard, excludes it from the highest class. Guided, as we are led to understand, by such considerations the water company which supplies the university and town of Cambridge has erected a plant for the purpose of softening the water which it delivers, using the zeolite process of base exchange which is suited to pure waters. Cambridge water, derived from the Fleam Dyke well in the chalk, is already bright, clear, and palatable. Its bacterial standard is excellent. Its chemical analysis has revealed 16 to 18 degrees of hardness. The design is to reduce this moderate figure, which is typical of chalk waters, to 8 degrees, and so by means of partial softening to abate the only imperfection under which the water appears to labour. As if to meet the possible criticism that the water company is taking pains to gild refined gold a speaker on its behalf at a recent meeting of the British Waterworks Association has pointed out that its aim is to turn out an ideal water. Such an aim is fully in keeping with the high standards now observed by the great water providers in the country generally. In the present case the ideal water to which Cambridge may look forward seems well fitted to be delivered to a distinguished fount of learning.

[3] Josephson, E. M.: *Science*, 1935, lxxxii, 222.
[4] Selinger, E.: *Arch. of Ophthal.*, 1935, xiv, 244.

AMBULANCE SERVICE FOR ETHIOPIA

We are asked to announce that medical officers are required immediately to serve with an ambulance unit for Abyssinia. They should not be over 35 years of age, and should be unmarried. Those with surgical experience and with experience of tropical diseases will be given preference. Adequate salaries are being offered, in addition to all expenses, including recognized outfit. Contracts in the first instance will be for six months, renewable thereafter for periods of three months. The form of contract can be seen at 33, Alfred Place, or will be sent on application to the secretary, British Ambulance Service in Ethiopia, Personnel Sub-committee, 33, Alfred Place, S. Kensington, S.W.7. Candidates must be passed as medically fit by the recognized examiner of the B.A.S.E., and will be required to submit to vaccination against the enteric group of diseases and small-pox.

MEDICAL RESEARCH COUNCIL

The Committee of Privy Council, after consultation with the Medical Research Council and with the President of the Royal Society, has appointed John A. Ryle, M.D., F.R.C.P., Regius Professor of Physic in the University of Cambridge, and Matthew J. Stewart, M.B., F.R.C.P., professor of pathology in the University of Leeds, to be members of the Medical Research Council in succession to the Right Hon. Lord Dawson of Penn, G.C.V.O., K.C.B., M.D., P.R.C.P., and Professor A. E. Boycott, M.D., F.R.S.

The tenth congress of the International Society of Surgery will be held at Cairo from December 20th to January 4th under the presidency of Professor A. von Eiselsberg of Vienna.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some lesions of the nervous system met with in general practice

TREATMENT OF ACUTE POLIOMYELITIS

BY

F. M. R. WALSHE, M.D., F.R.C.P.

The treatment of poliomyelitis has to be considered under three distinct aspects. These are: (1) the adoption of measures intended to cut short the infection before the nerve cells have sustained irreparable damage; (2) the adoption of measures intended to limit the spread of infection to other susceptible persons; and (3) the care and treatment of the paralysis which is the characteristic result of the disease. It may be said at the outset that there is no general consensus of opinion as to what can and may most usefully be done in respect of any of these three therapeutic problems, but the following brief statement is believed to embody the conclusions of those who have most closely studied them at first hand.

Serum Therapy

If we are adequately to assess our resources in controlling the infection before paralysis ensues, or in minimizing the severity and extent of the paralysis, we must consider very summarily what is known of the nature of acute poliomyelitis. Until recently it has been generally believed that poliomyelitis begins as a general infection represented clinically by a brief febrile illness of no unequivocal pathognomonic features, followed by an invasion of the subarachnoid space and then of the nervous tissues by the virus. Further, it has long been known that the serum of persons who have recovered from an attack of poliomyelitis possesses properties that protect such a susceptible animal as the monkey when some of this serum and infective material are *simultaneously* inoculated into the animal, or when the serum is administered within twenty-four hours of the experimentally produced infection. On the other hand, the administration of protective or, as it is commonly called, "convalescent serum" to a previously infected monkey after the symptoms of the disease have appeared is of no value, and the disease runs its normal course undiminished in severity.

This observation should have served to warn us that no very striking therapeutic results in man could be expected from the employment of convalescent serum, since from the very nature of the situation its use is delayed until the disease has developed and been recognized. Nevertheless, for over twenty years convalescent serum has been given in the hope, or by some in the belief, that by its means the infection might be destroyed before the virus reached the nervous system; or, alternatively, that it might serve to check the effects of the virus after it had gained entry into the nervous tissues and thus to mitigate the extent and severity of the paralysis. During this period clinical opinion has varied between extreme optimism and complete scepticism as to the value of convalescent serum; but the present position is that in the United States, where experience of its use has been most extensive and most closely controlled, the weight of opinion is that the serum treatment of poliomyelitis has not proved its value, and that the best that can be said of it is that it does no harm.

More recent investigations appear to throw some light upon this disappointing result, for it now seems that from the outset poliomyelitis is an exclusively nervous infection, that the initial pre-paralytic stage of the disease is in fact a reaction of the nervous system to invasion by the virus, which has already reached the motor nerve cells before any symptoms appear. The now widely admitted inefficacy of serum treatment may therefore find its explanation in the light of this conception of the disease. The damage is done before treatment can be given. Nevertheless, considerations of expediency, or the desire to protect potentially susceptible contacts from infection, may from time to time appear to call for the employment of convalescent serum. In these circumstances the procedure is as follows.

How to Give Serum

Human convalescent serum is prepared at the serum department of the Lister Institute, and may be obtained on application from the Medical Superintendent of the Western Hospital, Seagrave Road, Fulham, S.W.6. It is issued in 25 c.cm. ampoules, with full instructions for administration. The usual practice is to give 25 c.cm. intrathecally after withdrawing about 30 c.cm. of cerebro-spinal fluid by lumbar puncture, and another 25 c.cm. intravenously or intramuscularly. As the supply is limited, its use is intended only during the pre-paralytic stage or in cases showing spreading paralysis. It is probably only during the course of an outbreak of poliomyelitis that a provisional diagnosis of the disease is likely to be made before paralysis develops, and in these circumstances the cerebro-spinal fluid should be examined immediately and before serum is injected. The characteristic changes to be observed in poliomyelitis are as follows: an increase in cells up to 1,000 per c.mm., the cells being mainly mononuclears; in a few cases there may be many polymorphonuclear cells (50 per cent.). There is a moderate protein increase. The glucose and chloride contents remain normal. No other measures have any known value in controlling the infection, and the use of hexamine has proved unavailing for this purpose.

The diagnostic lumbar puncture with withdrawal of fluid may have some effect in relieving the pain and restlessness of the febrile stage of the illness, but repeated lumbar puncture for this purpose is not indicated.

Prophylactic Measures

The nasopharyngeal secretions, and probably the faeces, are thought to be infective during the incubation period (probably twelve days) and also during the first ten days of the developed illness. Therefore the nursing of the patient during this time must be planned on this understanding—that is, the patient must have his own utensils; material used as handkerchiefs must be burned and excretions disinfected. The value of antiseptic gargles for the patient and other members of the household is uncertain and probably not great, but it is expedient to employ them in order to impress upon all concerned the infective nature of the malady under treatment. Since the susceptibility to the disease is maximal during the early years of life, other children are best removed from the focus of infection where practicable.

Onset of the Disease

During the initial febrile phase of the illness, which may last for from a few hours to three or four days, diagnosis is rarely possible, and the measures taken are those appropriate for any febrile illness in a child. They include absolute rest in bed, the administration of castor oil or other aperient according to the patient's age, and a fluid diet ; for the relief of the pain that may develop in head, back, or limbs, aspirin in 5-grain doses, repeated three times daily, will usually suffice.

The paralysis is generally sudden in appearance and is maximal at the onset, tending to diminish progressively in extent and severity after the acute stage is passed. Occasionally, however, particularly in older patients and during an epidemic of the disease, the paralysis may appear in the lower limbs and spread upwards during the course of a few days. It is in such cases that death ensues from paralysis of the respiratory muscles. Again, in a few cases the paralysis may spread by a series of " jumps," appearing first in one limb and later in others. As a rule, however, the parents of the child may be assured that further spread after the first appearance of paralysis is unlikely.

From the onset of paralysis it is usual to divide the clinical course of the illness into acute and convalescent stages, the former lasting until muscular pain and tenderness have disappeared (two to six weeks), and the latter until the slow process of recovery has ceased—that is, from two to three years.

Treatment In Acute Stage

During the acute stage treatment should be confined to the relief of pain, restlessness, or sleeplessness, and to the keeping of the paralysed parts in a position of physiological rest. No other measures should be undertaken. Pain and tenderness are as a rule most severe in muscles which are but partly paralysed, and are most extensive in those patients in whom there is widespread muscular weakness—perhaps without any profound paralysis of any muscle. Aspirin in 5-grain or 10-grain doses, according to age, usually gives adequate relief, but bromide and chloral (dose according to age) may be necessary at night to secure sleep.

As soon as the presence of paralysis is detected—and it is at this point in most cases that diagnosis is first practicable—it is important to discover its extent and severity, even though this may require a painful examination. The rapidity and completeness of recovery in those muscles not irrevocably paralysed depends largely upon their being placed without delay in the position of rest—that is, of shortening. It may happen, for example, that paralysis of a deltoid may escape notice for some time, and that for a week or more the affected arm may be allowed to lie adducted to the side, the deltoid being thus permanently stretched for this period and its power of recovery impaired. Again, adhesions in joints which will later demand painful and difficult mobilization may occur if an early examination has not revealed paralysis of muscles acting upon it.

The paralysed legs should be kept extended, adducted, and rotated in, and the child nursed in the supine position with a small pillow beneath the knees to prevent over-extension at these joints. The feet must be kept at right angles to the legs. To secure all this sandbags and light splints may be needed. For small children splints should be as light and comfortable as possible, and with a little ingenuity adequate splints may be made from cardboard, cotton-wool, and adhesive strapping. Deltoid paralysis requires abduction of the arm, either by a splint or by fixing the arm to the head of the bed by means of a looped towel. During the acute stage no massage should be given, but periodical, gentle, and limited passive movements are all that are required or justified. If the back muscles be affected, the child must be kept strictly supine and straight in the bed, and not allowed to sit up or be propped up until an adequate spinal support has been applied. It is in cases of severe weakness of the back that the most prolonged rest in bed is needed.

Management During Convalescence

Once the convalescent stage is reached more active measures are called for. Within the compass of this article only the general principles of treatment can be stated. The measures to be adopted may be enumerated in the order of their importance. They are active exercises, passive movements, massage, orthopaedic measures. Electrical treatment is not given in this list, for extensive and controlled observations have shown that its use does not avert muscular wasting or hasten recovery. Indeed, when electrical treatment is regarded as the main line of attack it is positively harmful, in that it leads to neglect of more rational measures. This is a doctrine almost as unwelcome to the profession as to the public, so strong is the force of tradition, but it represents the weight of informed opinion. Indeed, it is impossible to see by what means the electrical stimulation of muscles can be expected to be of value. It can have no influence upon the recovery process in the spinal cord, and if the muscles are receiving exercises and massage, electrical treatment is at best quite superfluous.

Active exercises for those muscles which retain, or regain, the power of active contraction are the most valuable measure available. When the muscles are too feeble to carry the weight of the limb, this must be borne by the masseur, and active contraction is carried out over a limited range and against a minimum of resistance (assisted exercises). For every patient a scheme of such exercises must be drawn up and followed according to the distribution and degree of weakness, and the scheme must be modified from time to time as recovery proceeds. For totally paralysed muscles such exercises are not possible, and it is for these that massage and passive movements provide the next best mode of treatment. They have no actively curative effect, but they help to preserve the muscular tissue until innervation is restored. It cannot be too strongly emphasized that massage is not a substitute for active exercises in such muscles as can be dealt with in this way.

As soon as possible the patient must be mobilized. This may require splints for the legs and mechanical support for the back. It is important that such support should be provided before the back or legs are called upon to carry weight, and it is at this stage that the orthopaedic surgeon may be looked to for advice. In patients in whom severe paralysis and wasting remain after all possible recovery has taken place the feet and legs may become oedematous and cyanosed and the seat of painful and troublesome chilblains. For such cases lumbar sympathectomy is sometimes a valuable palliative measure.

The Drinker Respirator

A word may be said as to the use of the Drinker respirator. With an ascending paralysis the patient is threatened with paralysis of the respiratory muscles. Placing him in this machine may tide him over the climax of the paralysis and thus keep him alive until the upper level of paralysis recedes in a few days and respiratory movements again become adequate. It is clear that the number of patients of whom this is true is extremely small, and it has happened that after several days in the respirator it has become clear that no recovery is

taking place and that life is possible only in the machine. It cannot be indefinitely prolonged in this way, and both patient and doctor may be placed in a tragic situation in having to decide for how many days this dreadful existence is to be prolonged. Again, a life may be saved only to leave a profoundly paralysed and permanently helpless and bed-ridden patient. A truly successful result—that is, one in which useful restoration of muscular power ensues after a period in the respirator—must be rare indeed. The Drinker respirator, therefore, is not a therapeutic instrument of striking possibilities in the treatment of poliomyelitis, whatever may be its value in other varieties of respiratory difficulty.

INSANITY AND CRIMINAL RESPONSIBILITY

DISCUSSION IN KINGSTON DIVISION

At a meeting of the Kingston-on-Thames Division of the British Medical Association at Kingston Hospital on October 8th there was a discussion on "Insanity as a Defence in Criminal Cases." The chair was taken by Judge Dodson of the Central Criminal Court, and the legal and medical points of view were maintained respectively by Mr. G. B. McClure, Junior Counsel to the Treasury, and Dr. Doris Odlum. There was an attendance of more than fifty.

The Legal Argument

Mr. G. B. McClure argued that the existing legal definition of insanity for the purpose of defence on a criminal charge was correct and sufficient, even though it dated back to 1843. It was framed in the shape of answers by the judges engaged in criminal jurisdiction at the time to five questions put to them by the House of Lords; the issue arose out of the case of M'Naghten, who, in what was alleged to be madness, had fatally shot Mr. Drummond, the secretary of Sir Robert Peel.* One thing that never had been disputed was that the onus of showing that a person was not responsible in law, because of insanity, for an act which was alleged as a crime was upon the defendant. In the M'Naghten rules there was no reference to what had come to be called uncontrollable impulse, but there had been cases in which the question had been raised (for example, R. *v.* True, 1922) whether such a condition constituted an excuse. It was held in one case that it might be a defence if there was a defect of reason due to a disease of the mind such as to make a person, although he knew he was doing wrong, unable to control his impulses; but it was well to be reminded of the words of old Sir Matthew Hale that it might lead to "great indulgence being given to great crimes." At any rate, the Court of Criminal Appeal had made it known quite recently that it had no power to vary the M'Naghten rules to admit of any such qualification. Some time ago there was considerable discussion on the subject in South Africa, and the Chief Justice of the Cape of Good Hope laid down the principle that where the defence of insanity was interposed in a criminal trial the capacity to distinguish between right and wrong was not the sole test of responsibility in all cases. In the absence of any law to the contrary, said the Chief Justice, there must be some recognition of a mental disease which might prevent a person from controlling his impulses, and the defence of insanity was established if it were proved that the accused had, by reason of such mental disease, lost the power of will to control his conduct in reference to the particular act charged as an offence, but the capacity of the accused to control his own conduct must be presumed until the contrary was proved. It was significant, however, that the M'Naghten rules had never been extended to admit of uncontrollable impulse, and he thought the rules were adequate to present needs. It was singular that the defence of insanity was only raised in murder cases, while in cases of suicide a verdict of "insane" was returned almost as a matter of course, although no one probably really believed that in the legal sense the suicide was insane.

* The M'Naghten rules, which have been accepted as laying down the law of England on the definition of insanity with reference to criminal responsibility, will be found fully set out with a list of references in Archbold's *Criminal Pleading*, 1934, pp. 14–17.

The Medical Point of View

Dr. Doris Odlum said that the conception of the functions of the mind no longer consisted only of will, knowledge, and reason, but had come to include emotion. Therefore the old legal position based on the M'Naghten rules, depending as it did almost entirely on that older view of the functions of the mind, was in the light of modern views inadequate, to say the least. It might well be said that a person committing a crime was capable of knowing the nature and quality of the act, was aware with his reason that it was wrong in the social and moral sense, and yet the emotional disturbance which was at the basis of his illness so discoloured his mental processes that for him the act ceased to be wrong, and was in fact the only possible course of action he could take. There were many cases in law in which, if a stand were taken on the M'Naghten rules, a man could not be proved insane, although, on the modern conception of the emotional urge, a very different view might be taken. The "irresistible impulse" was something emotionally conditioned. It might not be obvious that the reason or the will of a person labouring under such an impulse was defective; but to those who understood this particular branch of medicine it would be plain that the whole emotional trend of that person's character had led him to a position in which the act he had committed was absolutely inevitable for him. It had been led up to by a process of causes and effects of which the act itself was only the culmination. The present law did not take account of this essential factor. Members of the legal profession sometimes appeared to think that in asking for something wider and more in harmony with modern conceptions of the mental state than the M'Naghten rules the medical profession was desirous of whitewashing criminals and explaining away responsibility. This was not so at all; but a doctor realized that punishment in the legal sense—that is, by imprisonment—was not always the best way of dealing with a person who had committed a crime: it was not the best way in the interests of society apart from the interests of the person convicted. The mentally deranged criminal was potentially a greater danger to the community than the sane criminal, whose motives were gain or revenge, and it was less likely in the mental case that imprisonment or other social sanction would have any effect. The medical profession did not want the person who had committed the crime to escape the consequences of his act, but imprisonment was not going to cure delusions: it would only give the insane person a greater grudge against society, so that, unless indeed he was imprisoned for life, there was likely to be sooner or later a repetition of his offence. She suggested that psychiatrists should be attached to the courts; this would assist the legal profession in dealing with cases in which insanity was pleaded, and would secure a more just disposal of those in which insanity was proved.

General Discussion

In some general discussion Dr. W. Russell Brain said that the criterion of defective reason as an indication of insanity had been shown by modern psychology to be unsatisfactory. Many patients whose minds were disordered suffered from disturbances in the realm primarily of emotion, not of intelligence. As doctors they were not primarily concerned to define insanity—a thing which had never been successfully done—nor strictly with the question of how far these persons were responsible for their actions: that was a psychological or legal question, not a medical one. But he felt it should be possible to give some such verdict as "Guilty, but the act was committed as a result of disorder of the mind," which would not tie anyone down to a definition of insanity; and instead of "detained during His Majesty's pleasure" it should be possible to bind such persons over on the understanding that they entered suitable institutions for

treatment. He believed the M'Naghten rules only "worked" in practice because they were not really applied.

Sir John Cameron, barrister-at-law, held that in the present stage of development of medical science the existing definition of insanity for legal purposes was the only one possible, and that in practice very little injustice was done. All crimes took one of three forms: dishonesty, passion or rage, and lust. He supposed that in all these cases Dr. Odlum would say that owing to some happening in childhood which had been thrust into the subconscious there came a time when the emotions of the individual were so activated that he was impelled to antisocial acts in one or other of these directions. On that line of argument every burglar would plead a "complex." With Freudism progressing at such a rate any petty thief would plead that his mind had been deranged as a result of some psychological trauma in childhood. As things stood at present very little injustice was done, because the courts were always ready to listen to a medical plea in mitigation.

Dr. J. Powell-Evans mentioned the case of persons convicted of abnormal sexual behaviour who were committed to prison. Apparently the legal profession believed that the only way to treat crime was by imprisonment—in other words, they did not believe in treating crime at all. Mr. S. C. T. Littlewood (solicitor) said that it might be held that no man who committed a serious crime was really sane. But the public had to be protected. He agreed that psychiatrists should be attached to courts, but at present when an unusual case was presented the criminal was visited by a psychiatrist and treated by him, and even in the case of minor offences, though no psychiatrist might be called in, probation officers did their work with much understanding. Dr. Helen Lukis (honorary secretary of the Division) referred to the admitted unworkability of the M'Naghten rules in suicide and in infanticide. The suicide generally knew what he was doing, and that it was wrong, and he almost invariably left an exculpatory note, yet the coroner's verdict was "unsound mind." Similarly in infanticide, the behaviour of the mother of an illegitimate child in concealing what she had done showed a sense of wrongdoing, but the M'Naghten rules were not applied in such cases. It qualified in these respects it seemed desirable to recast them altogether. Dr. W. B. Jepson spoke from his experience of courts of the great care taken by judges when instructing juries in cases in which any possibility of insanity entered.

Dr. Odlum said that they were not quite so Freudian as Sir John Cameron supposed. Instead of taking the isolated psychological trauma they would rather trace the irresistible impulse throughout the person's lifelong environment and influences. She mentioned that certain prisons were now recognized as places of training for the diploma in psychological medicine. Mr. McClure pointed out that attempted suicide was not a crime triable by a jury, and the coroner's verdict in a suicide case was usually a sentimental finding in which the M'Naghten rules did not apply.

Judge Dodson, in summing up, reminded the "jury" that in the administration of the law a man was presumed responsible until the contrary was shown. At one time that doctrine of the common law led the courts to sentence to death almost anybody convicted of murder, short of a raving lunatic. Then came Erskine's defence of Hadfield in 1800 for shooting at George III, in which he spoke of the injustice of holding a man responsible for what he did when wisdom was dethroned from her citadel. This touched the imagination of the public, and the pendulum began to swing the other way until, in 1843, M'Naghten was defended on the ground of insanity and acquitted. Then there came an outcry, and the result was the framing of the M'Naghten rules. It was now represented from the medical side that the rules ought to be enlarged to include emotional impulse, not delusions only. But even supposing a man had such strong emotion that he felt impelled to do something or other, was this not covered by the rule which laid it down that the offender was to be punished if he knew at the time of committing the crime that he was acting contrary to the law? It would unduly enlarge the present debate to consider whether, once the verdict was returned, the judge's powers should be enlarged to hand over the criminal lunatic to medical care, but every judge in an appropriate case welcomed a statement by a medical man that something could be done for the offender (say, someone guilty of a sexual offence) by proper treatment. But if the M'Naghten rules were extended unduly there might arise a state of affairs in which persons who knew full well the difference between right and wrong, and who were aware they were committing a crime, would shelter themselves behind the fortress of their infirmities. Did not a person lacking emotional control, even more than a person of strong mind, need reinforcement by the sanction and penalty which the law imposed? Would the person who was said to have acted on uncontrollable impulse have proceeded to the act had he noticed that a policeman was in sight? If the answer was "No," then surely such a person was responsible for what he did.

The question was put to the meeting: "Whether the definition of legal insanity as adopted by the criminal courts is adequate for modern requirements," and on a show of hands the "Ayes" had it—twenty-five to twenty-one.

PROFESSOR JUNG'S SEMINARS

INSTITUTE OF MEDICAL PSYCHOLOGY

Professor C. G. Jung of Zurich gave five seminars, from September 30th to October 5th, at the Institute of Medical Psychology to a limited audience of psychotherapists, medical graduates, and university workers. The chair was taken on the first evening by Dr. H. Crichton-Miller, and on subsequent evenings by Dr. J. A. Hadfield, Dr. M. Wright, Dr. Emanuel Miller, and Dr. J. R. Rees. Professor Jung dealt first with concepts concerning the structure of the conscious and unconscious mind, and secondly with methods of investigation, which he classified as the association test, dream analysis, and active imagination. In response to a request, he interpolated a special address on the problem of transference, instead of completing his programme on the subjects of dream analysis and active imagination.

The Normal Psyche

Professor Jung said he was convinced that psychotherapy could only be benefited by a considerably deeper and more extensive knowledge of the normal psyche in general; medical psychology must be careful not to become morbid itself. The time for general theories was not yet ripe. It sometimes seemed to him that psychology had not yet understood the gigantic size of her task or the perplexingly complicated nature of the psyche. Our realization of the ego was still quite fragmentary, and consciousness was like a skin upon a vast unconscious area of unknown extent. Any statement about the unconscious must always be qualified by "as if." Consciousness was a fragment of perception and orientation in the external world, and it arose from a vast sphere of unconsciousness. Its indispensable centre was the ego, a complex of facts drawn from perceptions and memory data. Consciousness had certain functions which enabled it to become orientated to the environment and to its own contents and those of the unconscious. The former might be called the ectopsychic functions, and included sensation ("la fonction du réel"), thinking, feeling, and intuition ("the hunch"). Functions could be directed by will, selected, cultivated, or excluded, but they nevertheless had their specific energies, and often acted involuntarily or even unconsciously. They acted in pairs, intuition and sensation contradicting each other just as thinking and feeling did. Therefore, whichever one of the pair was highly developed the other must necessarily be relatively undeveloped, and these undeveloped functions connected the consciousness with the unconscious realm.

Professor Jung emphasized that for him unconsciousness (always excepting the collective unconscious) was a relative

matter: a thing might be unconscious at one moment and in one set of circumstances and become conscious at another time. There was no absolute differentiation. Only in the very centre of the mind-sphere lay a certain group of inherited, racial, or collective images which were common to all mankind, were represented in the myths and dreams of all races alike, and never came fully into consciousness. This he termed the collective unconscious. Between that and the least developed ectopsychic function lay, he said, concentric spheres of endopsychic function, the most superficial being memory, the next the subjective components of conscious functions, the third the affects, and the fourth the invasions. The subjective components of consciousness were those reactions which were unpleasant and which the individual preferred not to admit, although, if he were candid, he would be bound to realize that they were present and affected his relationships. The affects or emotions were distinguished from the ectopsychic and rational function of feeling in many ways, but notably by the fact that they had a physiological counterpart, such as the palpitation of fear or the flush of anger, and they might be said to "possess" a man regardless of his will. Feeling, on the other hand, had no physiological component, and was a sense of value. From the sphere of invasion came those experiences which were spoken of by primitive people as possession, or by us as moods, inspirations, or, when habitual, neuroses. There was no difference at all between artistic inspiration and invasion except the social reactions of other people.

The images which were common to all mankind in the deeper reaches of the unconscious mind were called archetypes, a definite form of a very primitive or ancient character. They included such motifs as the hero, the redeemer, the dragon, the whale, or the descent into the cave. These were found in the folklore or epics of all nations, and it was impossible within the limits of a lecture to give the evidence for their existence. It was by now very voluminous, and involved a number of specialized studies. Professor Jung declared that anybody who had had his experience and followed his particular lines of research would undoubtedly have come to his conclusions, because they were perfectly obvious and common sense. Just as all mankind had two eyes, two ears, and one heart, so they had all the same basic mind, an ultimate kernel that could not become conscious.

Methods of Investigation

The association test was well known but was still useful, especially in difficult cases. Professor Jung explained how it was applied, and showed some illustrations of the way in which a story was revealed by abnormal reactions. He also showed the way in which members of a family or spouses might coincide in their reactions as the result of identification. A girl of 14, for example, showed almost precisely the same responses as her mother, the unhappy, disillusioned wife of a drunkard. Obviously there was going to be trouble if that girl went out into the world with the reactions of a disappointed woman of 45.

Passing then to dream analysis, Professor Jung took as an example an extremely ambitious schoolmaster who had come from peasant stock and educated himself. He was suffering from symptoms exactly resembling those of mountain sickness, and his dreams showed very clearly that he was letting his ambition run away with him and would come to disaster—as in fact had happened. Professor Jung emphasized that for him the dream symbol was a highly personal matter, different for each patient, and that the less the physician knew about his patient the better, lest he be led away by prejudices and preconceptions. The patient must be allowed to bring his own material and his own associations. The dream was essentially a rational and logical statement. It only appeared nonsensical because it was written in a language which could not be understood by the dreamer without special study. The philological method was the method of approach to the dream; establishing parallels and amplification, and regarding the obscure symbol as part of a continuous tissue with a history before and after. He quoted the instance of a young man who came to him with a complete Freudian analysis and asked: "Why am I not cured? See, I have my complete analysis; I understand everything. Why do I still have my symptoms?" It transpired that that young man was living in luxury on the money of an older woman, a school teacher who scraped and starved herself to supply him. No amount of analysis which avoided the real personal situation in this way could do any good.

Transference

Professor Jung's view of transference was that it ought not to arise in a satisfactory treatment. There should be mutual respect and affection, but transference was only provoked by some considerable abnormality in the patient or in the doctor. Occasionally it did appear before there had been any personal contact to speak of, and occasionally it arose in an acute form in patients who habitually resisted other human beings. In such cases it must be accepted, treated with respect, and disposed of as soon as possible. Often enough, however, it arose in the course of an analysis because of the absence of the proper *rapport* Then the patient, feeling desperate, would produce transference emotions as a compensation. The doctor was just as liable to do the same thing. Any psychotherapist who dreamed of his patients or had fantasies about them should at once investigate his attitude to them, and he would probably find that he was undervaluing or overvaluing them or failing to give them the attention they deserved. It was a great mistake for the doctor to think that he could leave himself out of that interplay of emotions and projections. For that reason Professor Jung rejected the method of placing the patients on a couch and sitting behind them, but talked to them as normal human beings and reacted to them naturally, answering them in their main function in order to establish contact. The presence or absence of transference had nothing whatever to do with the cure; it was simply a psychological fact that projection existed, and the transference projection had to be dissolved just like any other by making it conscious. If there was no transference, so much the better; the dreams would bring out everything that was necessary. The doctor must, however, be prepared for projections of all the patients' relatives and previous doctors When this stage of personal projections had been worked through there might still be a transference of impersonal contents, and the doctor must be prepared to be regarded as devil or divinity. But personal relationship to the analyst must be differentiated from the recognition of impersonal values or factors. This might cause the patient to join some religious movement, and it must never be forgotten that religions were great psychotherapeutic systems. When projections of an archetypal nature occurred the doctor was liable to be "caught" because he himself had the same archetypal figures in his unconscious. For instance, if patients repeatedly assured him that he was a saviour he might become the saviour to himself, which made him touchy, susceptible, and isolated, until finally he was lost to the profession.

A meeting of the court of directors of the Society for Relief of Widows and Orphans of Medical Men was held on October 9th, with Mr. V. Warren Low in the chair. Seven new members were elected and a grant of £52 10s. a year for five years was made to a widow to enable her daughter, who had already passed her preliminary medical examination, to study medicine; £645 was voted as a Christmas present to be distributed among the widows and orphans on the funds of the society, widows over 75 years of age to receive £15 each, those under 75 £10 each, and the orphans £10 each. The death of one widow, who came on the funds in 1919 and had received in grants a total sum of £1,155, was announced. Membership of the society is open to any registered medical man who, at the time of his election, is resident within a twenty-mile radius of Charing Cross. For a small annual subscription a member, in the event of his early death and before he has been able to make suitable provision for his wife and family, has the satisfaction of knowing that they will not be left unprovided for. Full particulars of the society may be obtained from the secretary, 11, Chandos Street, Cavendish Square, W.1.

ONE HUNDRED AND THIRD ANNUAL MEETING

of the

British Medical Association

MELBOURNE, SEPTEMBER, 1935

THE SECTIONS

SUMMARY OF PROCEEDINGS

Publication of the opening papers communicated to the Scientific Sections of the Annual Meeting at Melbourne began in the BRITISH MEDICAL JOURNAL *of September 14th, and will be continued during the next few months. The reports of discussions in this and our next issue are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Thursday, September 12th

Diagnosis and Treatment of Severe Anaemia

The second day of this Section, with Lord HORDER presiding, was devoted mainly to discussion of severe anaemia, its differential diagnosis and treatment.

Dr. J. C. MATTHEWS, who opened the proceedings, explained that there had been so many extensions of knowledge since the subject was discussed at the annual meetings at Edinburgh in 1927 and Eastbourne in 1931 that still further attention should be paid to a disease which was becoming more and more curable. He suggested the consideration of three questions: whether a provisional diagnosis could be reached by study of the history, symptoms, and ordinary clinical signs alone; how much further the diagnosis could be carried by the use of such simple haematological methods as were within the scope of general practice; and to what extent it was necessary to have the further information which could be obtained from the expert pathologist in order to determine the exact diagnosis and to guide treatment. Clinical data were of limited though considerable value; they often enabled the line of treatment to be determined. Too little use was made of the halometer by the general practitioner in view of its accuracy and helpfulness; the value of the chemical test for urobilin in the urine was generally known. But the dexterity and experience of the expert haematologist was still necessary, particularly in the case of the reticulocyte counts as a measure of response to treatment, the enumeration of blood platelets, differential leucocyte counts, including the recognition of immature forms, and in estimating the fragility of red cells. As regards treatment, it was now recognized that liver preparations were only effective in megalocytic anaemias; iron might be required in some cases of pernicious anaemia, as well as being of undoubted value in idiopathic hypochromic anaemia and other microcytic anaemias. In recent years the importance of large doses had been recognized, but nothing was gained by prescribing organic preparations or hydrochloric acid. Further points for discussion were the minimal criteria on which diagnosis could be based; the risks of treatment without haematological control; the reason for giving iron in large doses, and the adjuvant possibilities of copper or other metals; and the indications for blood transfusion.

Dr. J. H. ANDERSON (Ruthin Castle, Wales) briefly reviewed the normal mechanism of red cell development, and with the aid of diagrams illustrated the points where interference would lead to the development of severe anaemia. He pointed out that failure to absorb the anti-anaemic factor in the bowel rendered all medication useless, and that treatment in such cases must be by injection. In his experience liver was preferable in the acute stages of pernicious anaemia, as pig's stomach could be used orally only, could not be warmed, and was more unpleasant to take than liver. Two aims were essential: first, to restore the blood to normal; secondly, to keep it there, or even above normal, especially if the symptoms of subacute combined degeneration of the cord were present. In conclusion, Dr. Anderson said that when treating any patient with pernicious anaemia the following points must be carefully adhered to. The diet should be generous and abundant in vitamins. The stomach or liver extract should be of proved potency and should be pushed until the responses became evident, and then continued until the blood count was normal or above normal. If infection occurred or the blood showed signs of a relapse the maintenance dose should be increased forthwith. Intramuscular injection was a good plan at first, as it brought the patient up for inspection; maintenance should be continued for the remainder of the patient's life. Iron was needed if the colour index fell below unity, but hydrochloric acid only if digestive disturbances or glossitis was present.

Dr. C. T. C. DE CRESPIGNY (Adelaide) discussed those patients with megalocytic anaemia who were found to be resistant to liver therapy. He selected two such patients for description, illustrating his remarks by diagrams of the progress and changes in the blood count, in serological tests and haemoglobin estimations.

The first patient was a male, aged 35, who became anaemic and lost weight for eight months before he came under observation. He had been treated for five months by liver preparations, both orally and intramuscularly, without improvement. The chief abnormality, in addition to the usual features of a severe anaemia, was an enlargement of the liver. His blood film showed a megalocytic anaemia, but immature red cells were of a greater diameter than was usually found. The red cells differed considerably in their fragility, some being more and others less fragile than the normal. Free hydrochloric acid was absent from all specimens of the fractional test meal, even after histamine stimulation. The van den Bergh test showed a positive indirect reading. The patient received three separate transfusions, each of a pint of blood, within eight days, together with further intramuscular injections and liver, but a week later developed an infection of his antrum, which caused his death six weeks later. Unfortunately no necropsy was permitted.

The second case was described on account of the very long duration of the megalocytic anaemia. The patient was a female, aged 56, who had been constantly anaemic for eight years at the time when she presented herself for treatment in 1927. Her condition showed little variation until her death in 1934. No form of treatment produced any great or lasting improvement in the blood.

Dr. de Crespigny concluded that there was a rare form of anaemia in which a megalocytic state of the blood might persist in a remarkably chronic form. It was insusceptible to improvement by any known treatment except transfusion, and, although this might suffice to keep the patient alive, it was without any lasting value. The cause of this anaemia remained obscure.

Dr. IAN WOOD (Melbourne) discussed the subject from the point of view of the condition of vital organs which might follow severe anaemia, especially from traumatic blood loss. It was necessary to study the body as a whole and to consider the far-reaching effects of deprivation of haemoglobin blood proteins, lowered blood pressure, and circulation rate upon liver function, renal function, muscular strength, and cerebral co-ordination. From observations in Melbourne he had found that if the blood haemoglobin remained for long at or below 20 per cent. renal failure became evident. He advocated the rapid re-establishment of blood values by large blood transfusions given by the continuous-drip method, as advocated by Marriott of Middlesex Hospital. He illustrated the subsequent fall in blood urea which occurred after restoration of the haemoglobin value to 80 per cent. or more. Great care was necessary in blood transfusion to avoid a reaction resulting from the deposit of acid haematin in the renal tubules, which was capable of causing death within five to seven days after the operation. Prophylactic and curative treatment was possible by the use of large doses of alkali given orally. Severe anaemia was a medical emergency, and every hour was important in order to save life.

Dr. J. Clarke Begg (Swansea) discussed pitfalls in the diagnosis of pernicious anaemia, especially those into which the general practitioner, and even the consultant, might fall, rather than those confronting the haematologist. Pernicious anaemia had an insidious beginning, so that even a full blood examination at an early stage might yield inconclusive results. Again, remissions under modern treatment might be so complete that without the history examination might fail to disclose the condition. The chief difficulty was that pernicious anaemia was often strongly suggestive of primary disease in systems other than the blood, especially the gastro-intestinal, nervous, and circulatory systems. Dr. Begg illustrated these difficulties by reference to cases in which they had led him or others astray. The first patient quoted had actually lost considerable weight, which led to the conclusion that malignant disease was present, yet blood examination revealed typical pernicious anaemia. In another patient the tongue was furred, and symptoms pointed rather to gall-bladder disease. A further patient, a male, complained of numbness of the legs, which was diagnosed as neuritis, and much valuable time elapsed before investigation showed that he was suffering from subacute combined degeneration of the cord. It was easy to overlook pernicious anaemia in a neurotic woman complaining of every imaginable ache and pain, while a diagnosis of myocardial degeneration was common in patients subsequently found to be suffering from a primary anaemia. Dr. Begg realized the practical impossibility of performing a full blood examination upon every patient with doubtful symptoms of anaemia, but the difficulty could be largely overcome by the use of Eve's halometer. If the halometer reading indicated megalocytosis or was in the doubtful zone, further investigation of blood and gastric secretion should be carried out. If the cells were shown to be normal or less than normal in size, pernicious anaemia was extremely unlikely to be present. He made a plea for the more frequent use of this instrument before patients were involved in the expense of more elaborate investigation.

Dr. Eva Shipton (Sydney) continued the discussion from the point of view of the haematologist. After enumerating the various procedures required for a complete blood examination, she added a warning against the diagnosis of pernicious anaemia in the presence of free hydrochloric acid, and said that in adoption of a terminology the diameter as well as the volume of the red cells should be considered. Dr. G. N. Kersley (Bath) concerned himself with two types of anaemia which were common and curable by the administration of iron. The first type was the nutritional anaemia of infancy, which occurred at or after the age of 6 months in infants whose food had been deficient in iron. The second type was the group of anaemias of pregnancy, especially the microcytic form which occurred during the last three months of gestation at a time when the foetus was draining considerable quantities of iron from the internal reserve, aggravated by a deficient absorption of iron associated with the acquired hypochlorhydria of pregnancy. Symptoms were insidious and atypical, but if unrecognized and untreated the patient was liable to suffer from severe post-partum shock, which might prove fatal. Massive doses of iron were invariably successful, but a transfusion should be given if any tendency towards marrow aplasia could be detected. Dr. Gunaratnam Cooke (Ceylon) said that the chief anaemias in his country were associated with hookworm infestation, in the course of which the blood picture sometimes changed from the secondary to the primary type. He had found combined treatment of liver and iron to be very valuable. He stated that the complex terminology of the modern haematologist was most confusing to his countrymen, and he himself was content to call pernicious anaemia "large red cell anaemia."

Gallop Rhythm

With Lord Horder in the chair, Dr. Crighton Bramwell (Manchester) read a paper on gallop rhythm and the accentuation of the physiological third heart sound.

Dr. Bramwell emphasized the importance of distinguishing presystolic from protodiastolic gallop, since the former was a sign of very grave significance whereas the latter was compatible with perfect health. In a consecutive series of sixty-three cases which had in turn been culled from a consecutive series of 1,353 cardiac patients seen by him in private practice, only fifteen patients lived for more than eighteen months after the gallop was first noticed. Gallop might occur in association with essential or other types of hypertension, with coronary arteriosclerosis, or with acute inflammatory lesions of the heart. It developed only in patients with normal sinus rhythm and tachycardia, and disappeared if auricular fibrillation supervened. Presystolic gallop appeared to be due to sudden distension of the ventricle at a time when the ventricular muscle was lacking in tone. This was attributable to an increased rate of ventricular filling when, owing to tachycardia, the auricle contracted early in diastole. There was no evidence that bundle-branch block or partial heart-block could give rise to a presystolic gallop. Protodiastolic gallop was due to accentuation of the physiological third heart sound. It could be distinguished from presystolic gallop by the absence of any associated palpable impulse and by the unequal spacing of the sound. An accentuated third heart sound was generally audible in mitral stenosis, but presystolic gallop never developed in patients with this lesion, probably because auricular fibrillation intervened first.

Dr. G. Arbour Stephens (Swansea) differed from Dr. Bramwell concerning the physics by which the sound oscillation was produced. He stated that muscle produced no sound on contraction, and that the cause, in his opinion, was actual oscillation of the pericardial fluid. He had been able to show that the negative pressure normally existed in the pericardial sac, which altered on the appearance of cardiac failure, allowing the heart to move more freely and so to alter in sound. He drew attention to the change in volume and quality of the heart sound which might occur when a stethoscope with a very large bell was applied to the chest. The normal sounds resembled each other very closely under such conditions, especially if the pericardial lubrication was deficient. He thought it possible that gallop rhythm occurred when the serous exudations of the body were disturbed.

SECTION OF SURGERY

Thursday, September 12th

Prostatectomy

The first subject for consideration on the second day of this Section was prostatectomy, with Sir Carrick Robertson in the chair.

The discussion was opened by Mr. A. Clifford Morson (London), who urged the abandonment of the terms chronic hypertrophy and senile enlargement as applied to adenomatous disease of the prostate. A radical cure was essential, and so-called cases of recurrence indicated failure of the first operation, a portion of the adenomatous tissue having been left behind then. No enucleation technique permitted the preservation of the whole of the prostatic urethra. Mr. Morson discussed the vesical and urethral sequels of the Freyer, Thomson-Walker, and Harris procedures of suprapubic prostatectomy. Union by first intention was only possible in the last of these, and haemorrhage and fibrosis handicapped the healing process in the other two, though to a less degree in the Thomson-Walker procedure. In all techniques except that of Harris the trigonal flap of mucous membrane failed to adhere to the tissues beneath it, and thus a cavity was left between the healed urethra at its junction with the bladder base and the anterior wall of the rectum, while after some months there was a tendency for the new internal meatus to contract. Mr. Morson then detailed the advantages of the Harris technique, maintaining that there was complete and immediate control by suture of the haemorrhage, and that the post-operative recurrence of obstruction was definitely obvious, though the prostatic cavity was not always obliterated. By this method, further, it was possible to cover over completely with mucous membrane the raw surface of the bed of the

prostate, and to reconstruct the internal urinary meatus after it had been damaged during enucleation. Perfect visibility was now obtainable within the prostatic cavity as well as within the bladder; there was no danger of the passage into the rectum of the stitches which bound the trigonal flap of mucous membrane to the prostatic bed and the torn urethra; and convalescence was unhindered by the dangerous suprapubic drainage tube.

Mr. John Tait (Melbourne) discussed technique. His aim had been to develop a technique applicable to all types of case. He always relied on suturing for the control of bleeding, and was indebted to Harris for his introduction of the boomerang needle and holder. He had never used Pilcher's bag. In a few cases he had been forced to pack the prostatic cavity, but he had regretted it. There was a certain type of patient—the short, stout man with a protuberant abdomen—in whom it was impossible to introduce the sutures accurately, as the prostate was down behind the pubes and difficult to expose. He felt that the sutures themselves were the cause of secondary haemorrhage, and that another factor was complete closure of the bladder. He kept the bladder open till after the fourteenth day. He had had one case of fatal haemorrhage due to the use of suction drainage immediately on the patient's return to the ward. This should not be done. There was a risk of the pocketing of septic material under the flaps in the prostatic cavity, as evidenced by tenderness and swelling in the region of the prostate on rectal examination. Finally, Mr. Tait said that vaso-ligation should be carried out as a routine measure, and asked at what stage this could be most suitably done.

Mr. Frank Macky (Auckland) discussed the recent enthusiastic adoption of transurethral prostatic resection. One reason for this was the undue delay in the recognition of Harris's work. He was convinced of the merit of this operation, but it should be reserved for suitable cases. Resection should be carried out only on patients who were not suitable for Harris's operation. All the trouble he had had was due to not following Harris's instructions. In the avoidance of sepsis it was essential to keep to the midline and to make the incision reasonably small. Even after suprapubic drainage over periods of months a Harris operation with complete closure was still technically possible. Prostatectomy was now a good surgical, safe operation, but it would be desirable if patients reported earlier for surgical treatment.

Mr. G. H. Burnell (Adelaide) had found blood urea estimations of little assistance, and often noted remarkable variations in the results of the urea concentration test. The lack of correlation between the results of these two tests had led him to discontinue blood urea estimations. He relied on the indigo-carmine test, using Thomas's method. A colorimeter was unnecessary, the first and last of three specimens over successive periods of twenty minutes being collected and inspected. Stabilization of renal function was of more importance than isolated estimations. Mr. Burnell always ligated the vas and used a subcutaneous catgut suture. The Harris technique was suitable for every surgeon. During retrigonization he passed the distal end of the stitch through the apex of the trigone, which then went more easily into the prostatic cavity. In the last four years at the Adelaide Hospital 172 prostatectomies had been carried out for adenoma. Of fifty-five patients in whom suturing at the vesical neck was not carried out ten, or 18.1 per cent., died. Of ninety-four in whom sutures were used six, or 5.6 per cent., died. Of thirteen in whom primary closure was done all recovered. Suturing definitely lowered the death rate.

Mr. Richard Harris (Sydney) discussed technique. The first incision in a two-stage operation was always a short transverse one two inches above the symphysis. The bimanual intraurethral method of enucleation was always used by him. Visualization of the prostatic cavity with Harris's retractor was practically perfect. In the process of retrigonization the whole thickness of the trigone was pulled down. He rarely attempted to pick up the urethra. The trigone was sewn down as far as could be conveniently done without tension. Mr. Morson obtained primary healing in 50 per cent. of cases. Mr. Harris felt that if Mr. Morson took very wide bites of tissue during the suturing he would get Harris's own figure of at least 90 per cent. Primary closure was not an essential part of the operation, but a nicety of technique. It was neither advisable nor safe with a long vertical incision and a wide dissection of the bladder. Five hundred and forty-seven patients had now been operated upon by S. H. Harris, and the mortality was still 2.7 per cent. Preservation of the verumontanum was essential to the control of sepsis. He always carried out vaso-ligation as soon as the patient was admitted to hospital. In the estimation of renal function he relied entirely on the indigo-carmine test.

Mr. C. Roche (Melbourne) had had personal experience of twenty transurethral resections with one death. The patients suffered from median bar, prostatic fibrosis, early middle lobe, and early general prostatic enlargement. He had had no haemorrhage in this series. One patient would require further operation. He felt that this operation would replace open operation in specially selected cases. Mr. J. Kennedy (Melbourne) said that no operation of convenience should be associated with a mortality of more than 5 per cent. He asked if Mr. Burnell and the rest of the staff on the Adelaide Hospital had used Harris's technique only on selected cases. Freyer's figures (5 per cent. mortality in 2,000 cases) were obtained on selected cases. Often in a fat or debilitated patient one could not do Harris's operation. He used on such patients Pilcher's bag, which must be put into the bladder, and not in the prostatic cavity. It was removed next day, and did not delay healing. Sir Henry Newland (Adelaide) said that the bruising necessarily associated with prostatectomy made it impossible to expect primary healing always to occur. Further advance in technique might be possible with a cutting operation. He would like Harris to examine his patients urethroscopically as Mr. Morson had done. Mr. Burnell, in reply to Mr. Kennedy, said that the Adelaide Hospital patients were under the care of eight general surgeons, and were not selected in any way for the Harris operation.

Mr. Morson, replying, said that primary closure had revolutionized prostatectomy, but he selected his cases. He had little confidence in blood urea estimations. The test of greatest help was clinical knowledge. He was glad that only one speaker supported transurethral resection, though it certainly had some uses in fibrosis and carcinoma. He had introduced a radical operation for carcinoma some years ago. He had had some successes, but not enough, and he had now given it up entirely. X rays produced oedema of mucous membrane, which often caused retention of urine, especially with adenoma. Here it was useless, and he had seen no good results with malignant disease for the same reason. His mortality after operation was 4 or 5 per cent., but the importance of Harris's technique was the comfortable convalescence. Harris had seen the figure-of-eight stitch in use, and he thought that he had been agreeably surprised at its value.

Carcinoma of the Colon

With Mr. F. C. Pybus (Newcastle-on-Tyne) in the chair, Mr. H. B. Devine (Melbourne) opened a discussion on carcinoma of the colon.

Mr. Devine first called attention to the very high operative mortality rate, which ranged, according to various reporters, from 57 to 15 per cent., the rate for carcinoma of the proximal colon being nearly as high as that for the distal colon. The remote results of operation were good, however, owing to the rarity of early metastasis and recurrence. It was therefore essential to improve the operative mortality figures; this could best be attempted by early radiological diagnosis, operations on the "defunctioned" distal colon, anastomosing the sigmoid to the rectum in the resection of recto-sigmoid growths, and by using the clamp and enterotome method in proximal colon carcinoma. Most cases of distal colon carcinoma arrived for operation with acute or chronic intestinal obstruction, the malignant process being of the invasive constrictive type. The patient by then had become chronically poisoned (metabolically) by the toxic effects; his colonic tissue was devitalized, and there

was a highly pathological bacterial content in the colon. This was why the traditional methods of a sutured anastomosis were so often followed by speedy death. The patient was already very ill in the middle stage of a cancerous disease, and needed intravenous nutrition, blood transfusion, and measures to combat anaemia. Preliminary drainage was essential to remove the evil effects of chronic or acute intestinal obstruction, and the drainage must be continued until normal conditions obtained again. Mr. Devine described his method of operation, which was based on the principle that a segment of bowel would slowly lose its bacterial content if isolated. He therefore first disconnected the proximal from the distal colon at the transverse portion of the hepatic flexure; the "defunctioned" distal colon could now be washed out, and its bacterial content be reduced to a minimum. It then became safe to perform an orthodox sutured anastomosis, even though this segment of bowel might have become incompletely peritonealized, and thus to suture the sigmoid to the rectum. In carcinoma near the recto-sigmoid junction the "defunctionizing" method was still applicable, the whole operation being performed in two or three stages—namely, "defunctioning," resection of growth, and anastomosis. If the anastomosis was not effected immediately after resection the severed rectum was sutured, the peritoneum closed over it, and the divided end of the sigmoid implanted in the wound. Six months later, when the rectal stump was firmly covered with peritoneum, when the distal colon and rectum were almost free from infection, and the patient was greatly improved in general health, the sigmoid was connected to the rectum by a "telescopic" anastomosis in which no sutures were used.

Mr. Victor Hurley (Melbourne) said that the malignancy of carcinoma of the colon was low, but 50 per cent. of tumours were inoperable when diagnosed. Sometimes early and widespread dissemination took place. Over 50 per cent. of patients were admitted to hospital with intestinal obstruction, and this alone carried a mortality of 50 per cent. Most patients had obstruction in some degree when first seen. There were no characteristic symptoms, and suspicion should be aroused by the association of several features, in themselves trivial, and be followed by complete investigation. Patients were often well nourished, and anaemia was not a feature till late. Upper abdominal lesions were often simulated. Examination for occult blood should always be done. Sigmoidoscopy should be done with no anaesthetic and no preparation. The diagnosis should be verified at operation by palpation before any resection was undertaken. An opaque meal and enema should, if possible, be administered, but an opaque meal might sometimes precipitate complete obstruction. One could usually make or strongly suspect the diagnosis by clinical means. A plain *x*-ray examination might locate the site of obstruction. Bimanual examination was very useful. In the more serious cases the obstruction should be relieved and nothing else done at the first operation. Surgical treatment should be undertaken in stages. The best surgical approach was directly over the growth. Restorative measures, such as blood transfusion, subcutaneous saline injections, and administration of iron were of great use.

Mr. Alan Newton (Melbourne) did not agree with Mr. Devine's technique if the carcinoma was on the right side of the colon. Here he preferred the orthodox method of resection. If obstruction followed this it was readily and easily dealt with by ileostomy under local anaesthesia. For growths in the left side of the colon, however, Mr. Devine's technique represented a great advance. Mr. John Ramsay (Launceston, Tasmania) favoured the Paul-Mikulicz type of operation.

Mr. F. C. Pybus said that a somewhat wrong impression was given by mortality statistics, as every successful operation meant a life saved. A one-stage operation was ideal, but often not possible. The simulation of dyspepsia by the condition was important. Everything depended on a clean colon. A caecostomy was a mere leak. It was often quite impossible at operation to differentiate between neoplasm and diverticulitis. The time might come when gastro-intestinal surgery would be done in a special department, and the results would probably be better. He preferred sutures to clamps.

Mr. H. B. Devine in reply stressed the importance of a defunctioned and debacterialized colon. He agreed with Mr. Hurley on the importance of testing occult blood, which should always be done by the general practitioner. The mucous membrane of the colon should be examined radiographically by relief methods. He had had no good results from caecostomy. When resecting he used no other than a midline incision. In the hands of Mr. Newton orthodox resection could be done for right-sided lesions with good results; but for the average surgeon his own technique was better. After an orthodox resection mild degrees of peritonitis might occur around the anastomosis, especially in bad risks. This infection travelled along the suture lines, and could be prevented only by not using sutures. Replying to Mr. Ramsay, Mr. Devine said that one could not always apply the Paul type of operation. Replying to Mr. Pybus, he said that with his own technique one could do more for patients in whom the diagnosis was made late. He agreed that caecostomy was unsatisfactory.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Thursday, September 12th

Late Toxaemias of Pregnancy

The second day's session, under the chairmanship of Professor J. C. Windeyer (Sydney), began with a discussion on the prevention and prognosis of the late toxaemias of pregnancy, the opener being Dr. J. S. Fairbairn (London). His paper appeared in the *Journal* of September 21st (p. 531).

Dr. Fairbairn outlined the dietary requirements which had a prophylactic value, stressing the need of fresh food, and adding that the protein element should be supplied by fish, eggs, milk, and cheese rather than by meat. To discover and correct the early stages of disordered metabolism all expectant mothers should be examined frequently, and any signs of commencing toxaemia should be closely investigated in order that treatment might be prompt. Patients should be kept in bed to allow of accurate observation and lower body metabolism; failure to respond to treatment called for termination of pregnancy.

Dr. J. S. Green (Melbourne) said that in less acute toxaemias there was a strong tendency to complete recovery, but there was a sinister influence which caused trouble in the immediate pregnancy and produced a varying degree of medical disability. Specific prognosis in the individual case was very difficult, as there was a marked variation in the end-result in apparently similar cases, and the sequences were often very confusing. The following five factors were a guide in prognosis: early onset of symptoms (under thirty-five weeks), significant past history, age and parity, bad renal function, persistence of albuminuria and high blood pressure. In prevention, rest, elimination, dental attention, and a well-balanced diet were of assistance, but serious complications could not be prevented in the present state of knowledge. Recurrences took place in at least one-third of the cases. Medical disability undoubtedly caused some of the remote tragedy of child-bearing, but there was a very strong tendency to improvement with time, as albuminuria tended to decrease. Nevertheless, the persistence in many cases of a raised blood pressure and low response to the urea concentration test suggested a latent phase, with possibilities of relapse under the stress of further pregnancy.

Dr. F. Brown Craig (Sydney) thought that intestinal toxaemia had something to do with the aetiology. In a series of 5,000 cases he had found that constipation was a general rule in early pregnancy. With treatment of the constipation albuminuria became less. Dr. Craig said that he induced labour if the patients did not respond to eliminative and dietetic treatment. Danger lay in overfeeding rather than in underfeeding, and diet was more important in the first than in later pregnancies. He noticed a seasonal increase in the toxaemias of pregnancy,

the admissions to hospital being 15.5 per cent. greater in the cold than in the warm months.

Dr. Kenneth Wilson (Brisbane) said that he could always prevent a patient from developing these conditions, and he thought that there would be no further advance until the aetiology of the toxaemias was known. He advocated careful ante-natal care and administration of calcium and alkalis, but did not think there was any specific diet of value. He thought that permanent renal damage was influenced more by the length of the attack than by the severity of the symptoms. Dr. M. De Garis (Geelong, Victoria) stated that the effect of a long labour on the urine was to produce pus cells, hyaline casts, acidosis, and a change in urinary colour. She was very much against "starving" her patients. She prohibited condiments and salted meats only, and stressed the danger of a low protein diet and the importance of dental hygiene. Professor J. B. Dawson (Dunedin, New Zealand) stated that one toxin when circulating in the body, by its action on the organs of the body, produced further toxins, which tended to complicate the picture. He thought that the ductless glands played a definite part in the aetiology of this complaint. Dr. H. S. Jacobs (Melbourne) said that toxaemia was physiological, and that in his practice he insisted upon his patient producing weight cards every month, and as the average increase in weight in pregnancy was about five pounds a month anything over this warned him of the approach of a toxaemia. Dr. R. F. Matters (Adelaide) pointed out that recent work by Hoffman and others on the posterior pituitary showed that one of its actions was water retention in the tissues of the body, and he thought that this had a bearing on the aetiology of toxaemia of pregnancy. The Chairman stressed the importance of blood pressure estimation, quantity of urine passed, and diet. He stated that Australian butter, owing to bountiful sunlight, was fully charged with vitamins, and that biochemists analysing Australian vegetables said that they contained a sufficiency of calcium.

Dr. Fairbairn, in reply, said that the toxaemia of pregnancy was a disease of theories, and he thought that careful observation of methods of treatment would help to reveal the cause of the condition. He looked on albuminuria as a warning symptom of great importance in pointing to the possible onset of a toxaemia, but held that raised blood pressure was of far greater prognostic value. The presence of albumin in the urine during labour, in his opinion, was caused in a similar way to the albuminuria associated with exercise in the young athlete. The amount of urine excreted was most important in prognosis, and efficient nursing and administration of morphine were of great value in treatment.

Remote Results of Puerperal Sepsis

Under the same chairmanship, Sir Ewen Maclean (Cardiff) opened a discussion on the remote results of puerperal sepsis. He pleaded for the inauguration of an international scheme of investigation of the late sequels of puerperal infection on the lines pursued by the Health Organization of the League of Nations in connexion with the standardization of the make-up of the maternal mortality rates. His paper appeared in the *Journal* of October 12th.

Dr. Rupert Furber (Sydney) referred to the relationship between puerperal sepsis and fibrosis uteri and metritis, so called. In ninety-four cases that he had investigated only three patients gave a history of severe and two of mild puerperal sepsis; so that, although the average age of these patients was 41 at the time of treatment, he was unable to find any real proof that fibrosis uteri was commonly caused by puerperal sepsis. Wilfred Shaw's conception of the state of every parous uterus was that it was one of "halted involution," and that the amount of elastic tissue was proportional to the parity of the woman. It was accepted that the proportion of fibrous tissue to muscle before puberty was as three to two. These figures were reversed during the child-bearing period.

Dr. Arthur Sherwin (Melbourne) dealt with the results of puerperal sepsis affecting the Fallopian tubes, ovaries, pelvic peritoneum, and cellular tissue. In his opinion puerperal sepsis was too frequently blamed for tubal inflammation, and while there was fairly unanimous agreement regarding the exciting bacterial causes, there was not so much unanimity regarding the pathway of the spreading infections from the uterine cavity or the resultant pathological changes caused thereby. Martland stated that in acute puerperal peritonitis, which was found in approximately 50 per cent. of the fatal cases, the usual mode of spread from the uterine cavity was by way of the Fallopian tube. Donald McIntyre and Munro Kerr seemed to hold these views. On the contrary, Williams and McCallum held that puerperal infection did not occur by this route, but that it occurred as a direct spread by way of lymphatics to the peritoneum, or as a thrombophlebitis through the placental site into the blood stream. In the report of post-mortem findings at Queen Charlotte's Hospital it was stated that in one-third of the necropsies in such cases the tubes contained pus, probably owing to a "tracking back" from the peritoneal cavity. In eighty-two necropsies carried out at the Women's Hospital, Melbourne, only five cases of adnexal infection, all of which were unilateral, were found. Three of these cases were post-abortal, and the abscess was in the ovary only. Two of them were in the tube. One of these was post-abortal, and in this instance there was an abscess at the uterine cornu of the same side. One puerperal and tubal abscess was present. There were thirty-five cases of cellulitis and thrombophlebitis, accompanied in sixteen instances by general peritonitis; but in no instance was there any evidence of pathological change in the tube. Blair-Bell stated that streptococcal and staphylococcal infections did not destroy the mucous membrane of the tube in the way that gonococcal infection did; and complete functional recovery might occur after puerperal infection. In records of the last 3,000 maternity cases attended by the Victorian District Nursing Society it was seen that eighteen patients developed puerperal fever; three of these died, and of those remaining nine subsequently became pregnant; the remaining six were those most recently septic, and it was reasonable to expect that some, if not all, would become pregnant later. Donald McIntyre showed in his table fifty-nine women suffering from adnexal inflammation, with an average interval of five and a half years since their last confinement, only twelve of whom gave a definite history of puerperal fever. It seemed to Dr. Sherwin that McIntyre was setting a high premium on the virtue of these women, because the records of the venereal disease clinic at the Women's Hospital showed that the proportion of nulliparous to multiparous women was in the ratio of three to four. Curtis stressed that in his series of 192 cases of adnexal inflammation 70 per cent. were gonococcal in origin. Besides the possibility of gonococcal infection, the long interval made it possible that infection had occurred from contraceptive pessaries, instrumental trauma, and so forth. In Dr. Sherwin's opinion, therefore, puerperal infection did not usually spread by way of the lumen of the tubes, and that if infected patients were treated expectantly the great majority who recovered would have complete adnexal function.

Dr. Edward White (Melbourne) said that at the Women's Hospital, Melbourne, one hundred patients with post-puerperal and 300 with post-abortal sepsis were admitted annually, and it was his experience that if they were treated expectantly nature would bring about healing, and many of these patients had returned later pregnant. Dr. B. M. Sutherland (Melbourne) stated that puerperal sepsis was responsible for chronic invalidism, but only rarely for sterility. In some cases mild and chronic cystitis followed cervicitis. Pelvic cellulitis occasionally led to constriction of the ureter and subsequent pyelitis, and patients suffering from phlegmasia alba dolens often became subject to menorrhagia and metrorrhagia, necessitating hysterectomy. Dr. Fairbairn (London) congratulated Dr. Sutherland as being the only one to stress the main points of the late results of puerperal sepsis. The Chairman thought that the obstetrician was blamed far too frequently for delayed results of puerperal sepsis.

Sir Ewen Maclean, in reply, said that he was glad to observe that the operation rate in cases of tubal sepsis was gradually decreasing. He thought that the mode of infection was as Dr. Sherwin suggested, and entirely agreed with the views Dr. Sherwin advocated regarding the advisability of conservative treatment in early puerperal sepsis.

SECTION OF RADIOLOGY AND RADIOTHERAPEUTICS

Thursday, September 12th

Radiological Diagnosis in Lung Disease

With Dr. R. A. Gardner (Cairo) in the chair, Dr. J. G. Edwards (Sydney) opened a discussion on "Radiological Diagnosis in Disease of the Lungs." His paper appeared in the *Journal* of September 14th, p. 493.

Dr. J. O'Sullivan (Melbourne) stressed the importance of consultation between physician and radiologist in all cases of chest disease, since diagnosis was sometimes impossible from a study of the film alone. As regards *x*-ray technique he favoured the use of higher voltages than most radiologists, and exposed his chest films through an antidiffusion grid of the Lysholm type. The softer rays generally used failed to show the lung detail behind the ribs and mediastinal contents. Stephani of Switzerland used up to 150 kV peak, with a rotating Siemens grid. Dr. O'Sullivan deprecated the tendency of manufacturers to stampede radiologists into the purchase of high milliamperage apparatus for the examination of chests. For the introduction of lipiodol he favoured the insertion of a catheter through the anaesthetized larynx, placing the patient at various angles to determine the flow of the opaque medium. Dr. B. L. W. Clarke (Brisbane) referred to the danger of examining patients by the fluoroscopic screen, from the point of view both of *x*-ray exposure and of that of tuberculous infection from patient to doctor. In his opinion about 250 milliamperes was the most suitable current for the production of *x*-ray chest films. Every radiologist, he thought, should personally examine his own patients, and, in support of this contention, he instanced a case in which no fewer than eight physicians had failed to discover a carcinoma of one breast.

Dr. A. J. Collins (Sydney) said that he placed himself in the hands of the radiologist, and, as a physician, never felt competent to treat a patient with chest disease without the co-operation of the radiologist. He indicated that the radiological estimation of the activity of a tuberculous lesion was difficult, and that the conclusions of the radiologist in this respect were often erroneous, more particularly in regard to small lesions. Absence of *x*-ray evidence of tuberculosis following expansion of a lung after pneumothorax did not exclude a possible small and active focus of disease. There was considerable difficulty in distinguishing small healed and calcified lesions from early infiltrations, in which calcification was sometimes the first *x*-ray evidence of commencing disease. Dr. F. J. Gwynne (Auckland) located pus by bronchoscopic examination, removed it by suction, and then injected the lipiodol into the affected region alone. The possibility of "drowned lung" was thus to a large extent avoided. Dr. C. Badham (Sydney) thought that radiologists should adopt a much broader outlook in cases of pneumonoconiosis. It was essential to recognize that the pathology of dust diseases was on very poor footing. Until they could produce in animals a condition similar to that seen in man they should be cautious. In regard to Sydney sandstone dust he did not think that serosite was an important factor. In the interpretation of radiographs the radiologist had to consider that the causal factors were very imperfectly known and that there was ample scope for further investigation.

Dr. Edwards, in reply, agreed with Dr. Gwynne's technique for lipiodol injection, and in addition stressed the advisability of draining the lung by the assumption of postures immediately afterwards with the head lowered. In regard to the study of the normal, which was so important, he explained that the appearance of the films varied considerably, according to the milliamperage used. To Dr. Collins's question his answer was that the radiologist should not be dogmatic, but should be guided by the accompanying clinical data.

Diagnosis of Bone Tumours

Dr. H. R. Sear (Sydney) opened a discussion on the diagnosis of bone tumours.

He emphasized the need for an early and correct diagnosis especially as to the type of tumour, since subsequent treatment depended primarily on this. It was important to obtain a clinical history, including the results of such pathological tests as the Wassermann, the Casoni, the blood count, and the blood picture, if such investigations had been made. It might be essential that time should be available for progress skiagrams, or a diagnostic application of *x* rays of high voltage might be necessary to guard against pitfalls. Four groups of cases were distinguished according to whether the lesion was mainly periosteal, cortical, central, or there was composite involvement. Details were given of examples of each of these groups in order to show how mistakes might be prevented. The first group included secondaries from bronchogenic carcinoma, extraperiosteal fibrosarcoma, secondary neuroblastoma, and syphilitic periostitis; the second group contained hydatids in bones (of relatively high incidence in Australia), lymphadenoma, and secondaries of hypernephroma; the third group included these secondaries also, as well as hydatids occurring centrally, lipoid histiocytosis, and central cartilaginous masses and tumours; while of the diagnostic difficulties, where the whole structure of the bone was involved, reference was made to the differential diagnosis of Ewing's tumour, Paget's disease, lipoid histiocytosis, and secondary neuroblastoma.

Dr. V. McDowall (Brisbane) emphasized the need for the accumulation of all the data possible in every case of bone tumour, including the fullest history with clinical and pathological findings. By this means only could the radiologist be enabled to arrive at a correct conclusion. The medical profession ought to be educated in this respect. He himself first excluded inflammatory disease of bone, but considered that the diagnosis was difficult. He drew attention to the chaotic condition of the nomenclature of bone neoplasms, and paid a tribute to the clarifying work of the American Registry of Bone Sarcoma in this direction. The profession in Australia should combine to collect information on bone neoplasms on the same lines as the American institution.

Dr. C. I. MacDonald (Melbourne) stressed the need for the correlation of radiological, pathological, and clinical findings in bone neoplasms. The importance of pathology to the radiologist could not be overrated, and in particular he outlined the changing viewpoint of the pathologists, whereby many so-called sarcomata were now classed as anaplastic carcinomata. In regard to Ewing's tumour of bone he had seen only two cases at the Children's Hospital, Melbourne, and asked Dr. Sear whether he had found them more frequent in Sydney. Single bone cysts he considered had no connexion with hyperparathyroidism, and were probably degenerated neoplasms. Each year he grew more cautious about interpreting a bone lesion from *x*-ray films alone. He considered it preferable to delay his opinion to collect full data rather than to imperil intellectual honesty by a rash diagnosis. Dr. H. Praagst (Melbourne) pointed out that the usual incidence of Ewing's tumour was in the long bones. In spite of this he had seen four primary tumours of this nature in the ribs during the past year. Slides were demonstrated showing that some of these presented a large rounded mass projecting into the lung field, and rather resembling a pleural tumour. He considered hydatid disease of bone to be rather rare, having seen only nine cases in ten years. One very interesting point was that in many of these the Casoni test gave no reaction.

Dr. Sear, in reply, warmly supported Dr. McDowall's suggestion for an Australian organization on the lines of the American Registry of Bone Sarcoma. In reply to Dr. MacDonald he agreed that Ewing's tumour in children was rare. Most cases that he had seen in the ribs were in elderly people.

SECTION OF OPHTHALMOLOGY

Thursday, September 12th

Glaucoma

With Dr. A. J. Ballantyne (Glasgow), the president, in the chair, Mr. H. M. Traquair (Edinburgh) opened a discussion on the aetiology, early diagnosis, and medical aspects of glaucoma.

Mr. Traquair insisted that glaucoma was a disease of the patient, not of the eye, and that the recognition of a glaucomatous patient before the development of ophthalmic signs might in the future become an important, though undoubtedly difficult, part of the diagnosis of the condition. Primary glaucoma was a disease of unknown aetiology, mostly afflicting elderly persons of nervous temperament. The various forms known as subacute, acute, congestive, or inflammatory were exacerbations in the course of the primary disease, and should not be considered to be different kinds of glaucoma. The so-called prodromata of the acute stages were slight exacerbations, and showed that the disease had been present for a considerable time. Glaucoma might exist for many years without producing any symptoms or changes in the visual field. The period between the beginning of the glaucomatous process and the development of field changes might be called the pre-perimetric stage. The earliest field change produced was "baring of the blind spot"; enlargement of the blind spot, or the appearance of a tuftlike or flame-shaped scotoma was not an initial field change. The arcuate scotoma was a relatively late field change, and did not begin as an outgrowth from the blind spot. Mr. Traquair defined three stages in early glaucoma: the initial symptomless stage of the "glaucoma patient"; the pre-perimetric stage without field changes; and the stage of early field changes. The early diagnosis of glaucoma could not be made in the first stage, but should usually be made in the second stage. The disease was to be diagnosed by the clinical picture as a whole, and not by any one sign. The only pathognomonic sign was increased tension, and this was not always easily elicited. Well-developed field changes were never present without increased tension or pallor or cupping of the disk.

Lieut.-Colonel R E. Wright (Madras) said that academic work of recent years had clarified our conception of the mechanism productive of the primary glaucomas which operated in the posterior segment. Clinicians nowadays thought of two main modes, associated with increased volume of vitreous body and vascular bed respectively. Such hypothetical considerations of mechanism, however helpful, did not satisfy when the primary glaucomas were considered from the general medical aspect. The clinical investigator's concern was to find something more tangible, such as a recognizable generalized affection, with which he could couple this glaucoma symptom-complex. There was one known disease, and only one, which filled this role—namely, epidemic dropsy. Unfortunately epidemic dropsy is not a sharply defined entity from an aetiological and pathological point of view. Certain investigators considered it but part of the beri-beri disease-complex. Whatever it might be, it was of the utmost importance, inasmuch as it gave a lead to the clinical investigation of one of the greatest problems in ophthalmology. Epidemic dropsy occurred in those who ingested a certain type of rice. In India it was confined to Bengal. The Calcutta ophthalmologists had noted its important association with primary glaucoma for years. Kirwan's recent publication had made this subject familiar to readers of current literature. Stimulated by this unique syndrome, clinical research had been organized in the Government Ophthalmic Hospital, Madras, with a view to establishing some other such association. The primary glaucomas accounted for about 2 per cent. of the affections met with in approximately 20,000 out-patients. The investigations of Colonel Wright and his colleagues had not shown any significant correlation with blood pressure, sex, race groups, food groups, the prevalent metabolic derangement diabetes, or the common avitaminosis A deficiency; nor had biochemical examination of the blood or the vitreous in glaucoma patients helped. There was, as might be expected, an apparent association with the generalized degenerative changes loosely grouped under the term "premature senility." These negative results had been paralleled in their attempts at medical treatment. Except for the employment of miotics and massage, treatment consisted in decompression by various methods. Surgery was not necessarily advised, however, in early cases where considerations of age, economic position, etc., made an expectant non-surgical treatment more rational. In the diagnosis of early primary glaucomas the large Bjerrum screen was used according to methods made familiar by Traquair. It had not been sufficiently stressed that in early diagnosis the greatest importance must be placed on a comparison of the two eyes as regards tension, accommodation, field changes, pupil reflexes, general appearances, and so on.

Professor W. A. Osborne (Melbourne) said it would be amusing if it were not a little humiliating to find that with each succeeding enthusiasm in physiology and pathology a new hypothesis was put forward to explain glaucoma. They knew that glaucoma was a diseased state not merely of the eye, but of the body. Attempts had been made to unravel all the mysteries of glaucoma in terms of colloid swelling. With the vogue of histamine the causation was assumed in terms of this panergic agent. Vitamin deficiency had a few stalwart adherents. To-day they were in the era of cholinergic and adrenergic humoral activation, and glaucoma had not escaped. In the eyeball they had, exclusive of fluctuations of narrow amplitude, a remarkable constancy of pressure in health, and he considered that the fundamental problem of ocular tension—namely, regulation of a standard pressure—was the problem that called for investigation.

Dr. J. Lockhart Gibson (Brisbane) hoped that he was not too optimistic in suggesting that an early recognition of very slight signs of myxoedema would aid in the recognition of incipient cases of glaucoma. He was collecting evidence that the administration of thyroid might act as a preventive to the development of glaucoma. Glaucoma was a disease of later life. A degree of hypothyroidism was apt to occur in later life. The lens was harder and sometimes larger in later life. Given this and the turgescence of the ciliary body, the passage of the intercocular fluid from the vitreous chamber to the anterior chamber was impeded. They had learned that the colloid constituents of the blood plasma could not pass through the walls of undilated capillaries, but that they could pass freely through the walls of dilated capillaries. They had learned also that hypothyroidism led to a dilatation of the capillaries. Given, therefore, distension of the vitreous chamber with colloid, and the further distension due to the osmotic effect of this increased colloid constituent in inducing a passage of the fluid of the blood into the vitreous chamber, the lens and iris were pushed forward and the shallow anterior chamber of acute glaucoma was produced; this occurred unless the passage for the denser fluid from the vitreous chamber to the anterior chamber was very free. He suggested that in chronic glaucoma the filtration angle became gradually interfered with, and the deep anterior chamber of chronic glaucoma supervened. In cases of glaucoma he had been in the habit, for a few years, of advising thyroid treatment, and of encouraging patients whose one acute glaucomatous eye had been successfully operated on to take thyroid in the hope of preventing the good eye from being attacked.

Dr. W. F. Orr (Melbourne) said that he regarded tension of over 22 mm. with suspicion, and he had no doubt that his experience had provided justification for this suspicion. He found it difficult to believe that the pressure effects of tensions below 30 mm. were sufficient in themselves to produce the visual defects which were grouped under the term "glaucoma." Further, in secondary glaucoma a moderately high tension appeared to be tolerated much better than in primary glaucoma. He expressed his appreciation of the beautiful precision of the scotometric work of Mr. Traquair on the dark-adapted eye. Dr. E. L. Gault (Melbourne) remarked

that so far as the investigations of glaucoma went they appeared to be in the region of interested speculation rather than ascertained fact. The matter of early diagnosis was of peculiar interest. If they could see patients in the early pre-perimetric stage that would be an advantage to them, and would largely influence the methods used in therapy. If it were possible to diagnose glaucoma in this early stage it would be reasonable and right to indulge much more frequently in treatment by non-operative measures. Dr. W. A. Box (Melbourne) reported a series of twenty-one glaucomatous cases examined with the gonioscope. He emphasized the usefulness of this instrument in the elucidation of the angle of the anterior chamber in glaucoma, in the diagnosis of cases of incipient glaucoma, and as a guide to the treatment of a particular case.

Mr. N. BISHOP HARMAN (London) said that he was an unconvinced opponent of the contention that glaucoma was a disease of the body rather than the eye. He considered that the ophthalmoscope and the screen were the chief instruments upon which to rely. He used a screen with a self-recording chart, working at a distance of one-third of a metre. With the ordinary Bjerrum screen he thought that too much time was taken up, and the patient became exhausted in the examination. Reduced illumination was invaluable. Dr. J. H. DOGGART (London) said that there was one simple way not already mentioned by which early glaucoma could sometimes be detected—namely, when pulsations of the retinal vessels were discovered after instillation of a mydriatic. Dr. EDWARD RYAN (Melbourne) asked for further information about those cases of malignant glaucoma which, no matter what treatment, operative or otherwise, was employed, progressed until ultimately removal of the eye was necessary. Dr. J. RINGLAND ANDERSON (Melbourne) said that he was making use of a particular kind of perimeter, made locally; a rheostat could reduce the illumination to a desirable point, and by comparison of the results thus obtained with those obtained by full illumination information of particular value could be acquired in the early diagnosis of glaucoma. At the Alfred Hospital patients with glaucoma were being more carefully investigated medically by renal efficiency tests and blood sugar and serum calcium estimations, and the acetylcholine content of the aqueous was being estimated when possible.

Mr. TRAQUAIR, in reply, doubted very much whether the cause of glaucoma would be found in the eye. Colonel Wright's remarks on the association of glaucoma with epidemic dropsy were one indication that the cause of glaucoma was not in the eye. A tension of over 22 mm. he would regard with suspicion, and he would possibly instil eserine and make another test in half an hour. With regard to Mr. Bishop Harman's remarks concerning the Bjerrum screen, he used it because it was such a quick method. Colonel WRIGHT, in reply, said that he was in agreement with all that Mr. Traquair had said. There was one point which might be emphasized: actual tension was of no value whatever; it was the relative tension that counted.

SECTION OF ORTHOPAEDICS

Thursday, September 12th

Fractures of the Neck of the Femur

With Mr. L. O. BETTS, Vice-President, in the chair, Professor E. W. HEY GROVES (Bristol) opened a discussion on fractures of the neck of the femur.

Professor Hey Groves, whose paper appeared in the *Journal* of September 14th, detailed the way in which the nail procedure had been gradually adopted after initial opposition. It should not, however, be used for cases in which failure was inevitable. The technique owed its efficiency to three points: the radiating blades of the nail fixed the fracture in regard to rotation in a way that no other method did; the shape of the nail made it possible to achieve complete penetration of the neck and head with the minimum of drilling or destruction; and the impaction involved in first driving in the nail, and then hammering the fragments together, ensured the closest possible apposition. The operation should always be performed provided that the case had not lasted longer than three months and there was no marked absorption of the neck or necrosis of the head. Whitman's plaster method should be reserved for patients who refused open operation.

Mr. S. T. IRWIN (Belfast) said that the treatment of fractures of the neck of the femur might be divided chronologically into four periods, excluding that period at which no treatment at all was practised: first, the period of treatment by fixed extension or extension by weight and pulley before the introduction of Whitman's plaster method; secondly, the period of Whitman's method; thirdly, treatment by autogenous bone graft; and fourthly, the modern method of treatment by the Smith-Petersen nail. In the first period Mr. Irwin had treated patients by weight extension. The surprising fact emerged that among fourteen such cases union occurred in nine. His experience of treatment by Whitman's plaster and by the autogenous bone graft was similar to that of other surgeons. His practice in introducing the Smith-Petersen nail was to use the open operation as originally described by the originator.

Mr. J. W. HOETS (Sydney) said that the treatment of these fractures depended on whether one decided to use a nail and, if so, how to introduce it. If the nail was to be used one must be certain that the fracture was adequately reduced, and for this purpose radiographs taken in two planes were essential. The lateral view could be taken on a curved casette. It was as necessary to provide complete fixation of the fragments as in fracture of any other bone, and the Smith-Petersen nail was the logical method to use. Concerning the methods of introduction it was beyond argument that open operation would be required in old cases in which scar tissue might be expected between the fractured surfaces. In recent fractures the subcutaneous method was perfectly satisfactory. The time taken in this operation might be tedious to the operator, but did not distress the patient. The wound was much smaller and the risk of sepsis much less. Contrary to the views of some surgeons, Dr. Hoets believed that the senile patient was the one who stood to gain most.

Mr. THOMAS KING (Melbourne) had no doubt about the desirability of using the Smith-Petersen nail, and he proposed only to discuss his method of introducing it. The method which he practised had been evolved by himself independently, although other surgeons, particularly Johannson, had popularized it in Europe. Mr. King had treated forty-eight cases of fractured neck of the femur, all intracapsular, in the past three years. In the first four he employed the original wide exposure described by Smith-Petersen, but the results for one reason or another were very unsatisfactory. Of the other cases eleven were not operated upon, and for the remaining thirty-three he had employed the method which he had previously published. There was but one death, from pulmonary embolism, on the following day. Five other cases were more or less unsatisfactory. Of the remainder good bony union had occurred in twenty cases, and seven others were still under observation. Mr. S. A. S. MALKIN (Nottingham) said that old ununited fracture presented a slightly different problem. He showed *x*-ray films of such a case which he had treated by an osteotomy at the level of the lesser trochanter. The upper end of the shaft was displaced medially until it lay directly under the site of fracture. This was designed to give the patient a more stable hip, but one unexpected result was that union of the original fracture occurred. While this might be a happy accident, it was a useful procedure, even when union did not occur.

Mr. D. J. GLISSAN (Sydney) wished to add to Professor Hey Groves's list of indications for the operation one more requirement—namely, that the surgeon should be competent to handle the method he selected. Australia was a country of large distances, and he would not like it to go forth that those present considered that there was only one way to treat this troublesome fracture. Students

should be given an alternative: they should be taught how to apply Whitman's plaster effectively, and how the patient should be nursed thereafter. Smith-Petersen had evolved the present form of his nail with the object of preventing rotational displacement at the fracture site, but there were other methods of attaining this same end. A carpenter presented with a similar problem would use two ordinary nails, and he believed that ultimately two Kirschner wires would be used for this purpose. If they were placed as accurately as Mr. King had proved he could place them, they would be as satisfactory as the Smith-Petersen nail. He advised Mr. King to try this suggestion. Mr. C. W. Littlejohn (Melbourne) said that he had elaborated a method of approach to the fracture differing from that usually practised. Through a lateral incision he removed the great trochanter with a Gigli saw, which gave easy access to the fracture site through the thinnest part of the capsule. The operation could be done under local anaesthesia. He no longer advised the patient to commence walking immediately after the operation. Mr. Hugh Trumble (Melbourne) demonstrated a splint to replace the walking calliper; this he had already described in the *British Medical Journal* of May 25th, 1935.

Professor Hey Groves, in reply, said that he did not intend to suggest that Smith-Petersen's method was the only method of treating these fractures. Even after Mr. King's excellent demonstration he was still unconvinced that the subcutaneous method would last, and he was very favourably impressed by Mr. Littlejohn's procedure, on account of the small incision employed. He would take back to England a sample of Mr. Trumble's splint, which he greatly admired.

SECTION OF OTO-RHINO-LARYNGOLOGY

Thursday, September 12th

Chronic Suppurative Otitis Media

With Mr. Francis Muecke, the President, in the chair, Mr. L. Graham Brown (London) opened a discussion on the treatment of chronic suppurative otitis media.

Mr. Graham Brown summarized the present state of knowledge of the treatment of chronic middle-ear suppuration. In prophylaxis the possibility of latent mastoiditis, particularly in the case of young children, must be borne in mind. Efficient radiograms were of great value in this respect; in many cases, however, a real conception of the extent of a lesion could only be gained by opening up the mastoid antrum and removing the posterior bony wall of the meatus, the bridge of bone over the aditus, and part of the outer attic wall. Conservative medical methods of treatment were reviewed, and the speaker described his method, which consisted of the instillation of hydrogen peroxide drops into the meatus followed by syringing with boric acid solution. Later, as a disinfectant, he commended the instillation of alcohol and the application of iodine. Operative treatment was necessary in 25 to 30 per cent. of all cases. Minor methods were first tried to promote better drainage and antisepsis; they were occasionally effective in bringing about a cure, but usually had to be followed by the simple or Schwartze mastoid operation or by the conservative radical, antro-epitympanic, or transantral attico-tympanotomy. If necessary, recourse could then be had to the radical mastoid operation. Thus, where the indications were not at first precise, surgical intervention could be gradual and conservative, the operation being extended as necessity dictated. After reviewing in detail the indications for operation, the speaker ended by visualizing a better technique in the future, which would preserve the mobility of the oval and round windows, restore the functioning of the labyrinthine fluid, and graft into position a new tympanic membrane.

Dr. R. S. Godsall (Sydney) confined his remarks to cases in which the otorrhoea was of not less than twelve months' duration. He considered that only cases of posterior and marginal perforation with offensive discharge were under discussion. He would not persist with conservative treatment for more than three months, and in this respect he favoured zinc ionization or the use of iodine powder. He asked what was the definition of a "cured case." There was always the bugbear of recurrence of discharge with upper respiratory infections. He would not perform ossiculectomy. He did not favour the attico-antrostomy operation, because he felt it was impossible to avoid injury to the malleus and incus and their articulation. A percentage of moist ears after the radical mastoid operation were due to incomplete removal of the outer attic wall or to inability to remove deeply situated peritubal cells. For many years he had been opposed to the cutting of a meatal flap, and he had found no reason to depart from this procedure after several further years' experience. Dr. H. J. Gray (Perth) said that cases of otorrhoea following acute otitis media of more than two weeks' duration should be referred to an otologist. He agreed that swimming was dangerous to people not only with chronic suppurative otitis, but also when a dry perforation was present. Rubber plugs in the ears were useless. Of conservative measures he thought that it was the efficient cleansing which counted, and found iodine powder or spirit drops the most useful antiseptics. Some failures were explained by inability to get beyond the area of osteitis. His aims in treatment were: (1) to make the ear safe; (2) to preserve the hearing; and (3) to make the ear dry—in that order.

Dr. J. Acomb (York) emphasized the importance of prophylaxis. The foundation for chronic suppurative otitis was usually laid in early life, and education of the public and of students was essential, so that the pathological process might be arrested at this stage. In chronic cases he was often obliged to continue conservative treatment for some time, owing to shortage of hospital beds, and he favoured dimol powder, which was more stable than iodine powder. Concerning operations he preferred to advise two or more conservative operations with preservation of hearing rather than one initial radical operation, with inevitable loss of hearing function. He favoured a similar conservative operation to that of Mr. Graham Brown, and was aided by magnification with Bishop Harman's binocular loupe. He avoided a meatal flap by filling the cavity with a temporal-muscle flap or, more recently, a periosteal flap. Dr. H. M. Jay (Adelaide) considered that the amount of retention of cochlear function was a guide to choosing between conservative or radical operation. Dr. A. B. K. Watkins (Newcastle, N.S.W.) stressed prophylaxis. He operated on all patients with otorrhoea after four to six weeks, provided the nasopharynx had been investigated in that period. Following scarlet fever he operated about two weeks earlier. Mr. J. F. O'Malley (London) discussed the function of the Eustachian tube, and pointed out the difficulties of drainage and ventilation of infected mastoid cells. He was inclined to do very few radical mastoid operations.

Dr. Douglas Guthrie (Edinburgh) said that the need for such a discussion was really a confession of failure. Efforts should be concentrated upon the more prompt and efficient treatment of acute otitis and the prevention of chronicity. The radical mastoid operation ought to be one of the rarest events in otological practice. Dr. J. H. Shaw (Melbourne) noted that Mr. Graham Brown removed "all diseased cells"; he himself preferred to remove all cells, because of the possibility of post-operative infection of any remaining cells. He thought that iodine powder had revolutionized the treatment of otitis, but advised that it should be used only by the specialist. Dr. Hugh Mitchell (Melbourne) considered that the radical mastoid operation should not be done except when intracranial complications occurred. Why were radical mastoid operations so common in England and so uncommon in Australia? Probably diet was a potent factor, for he had noticed that otitis in children from industrial centres often cleared up spontaneously after a week in hospital, where they received fresh vegetables, etc.

The President (Mr. Muecke) felt that more emphasis should be laid on prevention. In his long experience at the London Hospital he had found that inspection of the London County Council school children and attention to

nasopharyngeal disease had enormously decreased the number of ear cases. He had tried all the new conservative measures, and always came back to the use of spirit drops. He agreed with Dr. Shaw that "all the cells" must be removed, and favoured a periosteal flap when operating.

Mr. Graham Brown, in reply to Dr. Godsall, stated that the ossicles were not so delicate if one was careful. The advantage of the attico-antrostomy operation was the preservation of hearing. The ideal condition for this operation was attic suppuration, and the operation could also be applied to small cholesteatomata. Not all cases became absolutely dry: there might be just a little moisture, of slight inconvenience to the patient. The operation had the added advantage of protection of the inner tympanic wall and a certain amount of preservation of elasticity of tissues. His maxim was "Safety first, then preservation of hearing."

SECTION OF PATHOLOGY AND BACTERIOLOGY

Wednesday, September 11th

Calcification

With Professor A. M. Drennan (Edinburgh), the President, in the chair, Dr. F. S. Hansman (Sydney) opened a discussion on calcification.

He gave a most comprehensive summary of present knowledge on the subject, and expressed his belief that the evidence now forthcoming that serum was not a watery solution but a lyophilic colloid, and that the laws governing the behavour of such solutions of inverse type were as yet unknown, precluded discussion as to the importance to calcification of the supersaturation of serum with calcium phosphate and of the Ca × P product of the serum. He summarized the enzymic complex mechanism of calcification as elucidated at the Lister Institute by the work of Robison, who described a bone phosphatase factor, a precipitation of calcium phosphate from supersaturated solution, and the influence of vitamin D on the latter. He then referred to experiments bearing on the interdependence of calcium, phosphorus, and vitamin D in the diet for calcification, commenting on the pathology of hypervitaminosis D in relation to calcification, and also the parts played by the parathyroid, thyroid, thymus, and pituitary glands. Dr. Hansman then dealt with the problem of the calcium and phosphorus necessary for normal calcification in man. It seemed likely that about 0.28 gram of calcium was required daily. Work at the Prince Albert Hospital indicated that the problem of phosphorus requirement was more important than that of calcium. The speaker ended with a brief reference to the question of the processes underlying the growth and determination of shape of bones.

Professor P. MacCallum (Melbourne) said that in addition to the important mechanism of calcium liberation by phosphatase, the chemical and physical relationship of the calcium deposited to the medium or matrix in which it was deposited was of importance, and suggested that specific physico-chemical information about the various mucinous bases of the matrices was needed. The behaviour of calcium deposition in relation to the supply of phosphorus and certain features of the vitamin and parathormone suggested that such deposition occurred in a zone comparable to that determined by similar conditions in colloidal states. Calcium deposition in dead tissue and its relationship to blood supply were important. The work of Adamson and Smith on the condition of calcium deposition from saliva, and its bearing on the formation of concretions, was of considerable interest. Dadswell had analysed the phosphorus content of Australian grain and vegetables, and had shown that there was a low phosphate content. This was important in relation to dietetic requirements.

Dr. Edgar King (Melbourne) discussed the development of calcification in those conditions in which certain epithelial tissues—for example, the bladder wall or part of the intestine—were implanted into the anterior abdominal wall of animals. Lantern slides from photomicrographs of actual examples were shown. Phosphatase was present in the fluid obtained from the cysts lined by the transplanted epithelium. Dr. R. A. Willis (Melbourne) mentioned experiments which had been carried out in 1870, in which the whole renal pedicle was ligated, with a resultant deposition of bone around the pelvis of the degenerated kidney. He had repeated these experiments, and had confirmed the results of the German workers. The metaplasia of bone following the death of the tissue was important.

Dr. R. D. Wright (Melbourne) referred to the nature of the compound formed in bone between the protein matrix and the calcium phosphate. From the observation that calcification was always associated with a mucinous (glycoprotein) compound it might be argued that there was a compound form with a linkage of the calcium or phosphate to the hexose, forming a colloidal solid. This was borne out by the observation that in sequestra with deproteinization of the bone the calcium separated as crystals with the optical axes in the longitudinal axis of the bone. This orientation of the crystals was probably the basis of the increased opacity of sequestra to *x* rays, and might explain the delay in the demonstration of dead bone by such means in cases of osteomyelitis. Dr. J. V. Duhig (Brisbane) said that he had submitted calcified arteries (the abdominal aorta and the coronary arteries) to chemical investigation. The phosphates and carbons of calcium were always present in proportions identical with those found in bone. A calcified vessel was really a bone. The presence of calcification in the costal cartilages was not dependent on old age, but was probably associated with some basic vascular lesion.

Thursday, September 12th

Anaerobic Infections

With Professor A. M. Drennan (Edinburgh), the President, in the chair, Professor H. A. Woodruff (Melbourne) opened a discussion on some toxaemias of animals due to anaerobic organisms.

Professor Woodruff presented a comparative pathological study of recent work, with particular reference to the toxaemia of intestinal infection in man. He said that there was no agreement as yet with regard to the pathogenesis of this toxaemia, but there was now evidence incriminating anaerobic intestinal organisms, although it was not yet clear whether these were the chief or main cause of the toxaemia or whether they were incidental and comparatively unimportant. The experimental work reviewed by Professor Woodruff related to "blackleg" in calves; braxy in sheep; infectious necrotic hepatitis in sheep; experimental black disease in rabbits; infectious enterotoxaemia of sheep; and lamb dysentery. In contrast with previous work recorded on the dog, the study of these conditions was of value because they occurred naturally; the numbers of animals concerned were large; the experiments could be controlled in many ways by normal sheep available at every abattoir; and the experimental animal used for the crucial test of the reproduction of the disease or of its prevention was the same animal as was naturally attacked. Ample justification had been forthcoming for the statement that very particular conditions were required for the establishment of *B. welchii* infection in living human tissues. In the case of this organism, as with the pneumococcus, typing was essential if serum therapy or prophylaxis was to be of any value. Details were given in each case of the identification of the various organisms and of the nature of the toxins they produced. The part taken by the spores in infection was often significant.

Professor C. E. Hercus (New Zealand) was glad to see so much attention being paid to comparative pathology at a conference of the British Medical Association. He stressed the parallelism of the problem of human and animal pathology in such diseases as goitre, hydatids, and Brucellar and tuberculous infections. With regard to anaerobic infections of animals, his experience was confined to the infection of enterotoxaemia of lambs, and he

did not think that there was likely to be any close parallelism in the mode of infection, except in respect of accessory factors. The toxaemias of tetanus and botulinus affected both men and animals. Tetanus was more prevalent in certain districts of New Zealand than in others. The part played by catgut as a source of infection was realized, but the organism had not been isolated in every case from the implicated gut. Mentioning the importance of the path of the toxin to the central nervous system, he suggested that radical revision of the present knowledge might be necessary. There had been 213 fatal cases of tetanus in New Zealand in the last twenty years, and a noticeable fact was the excess of male over female cases in the proportion of four to one. With reference to diseases caused by the Clostridia, he stressed the association of secondary pyogenic organisms, particularly in gas gangrene. With regard to the Clostridia infections in animals, blackleg was very prevalent in some parts of New Zealand, and vaccination had proved effective as a prophylactic. True braxy was not found, but black disease was present there, and valuable work had been done in the investigation of this condition. In 1929 he had shown that a toxaemia was present in this disease, and he referred to the possible significance of nutritional factors in its aetiology. He did not think that the question of intestinal stasis played an important part.

Dr. G. H. Oxer (Western Australia) pointed to fat body condition as a predisposing cause of these diseases, particularly in relation to blackleg of calves and black disease of sheep, and somewhat less so in the case of braxy and the infectious enterotoxaemia of sheep. He emphasized the different reasons for the seasonal appearance of these diseases. The importance of diet in relation to infectious enterotoxaemia was stressed. The age incidence of this disease depended on the age of the young susceptible animal at the time of flush growth of pastures in spring or autumn. In at least two of the diseases there was definite field evidence to show the development of flock immunity. The most universally successful method of active prophylactic immunization was by the use of antigens consisting of anaculture (toxoid and bacterial bodies). For economic reasons the use of antitoxic sera as a general prophylactic measure in live stock was not feasible. Active immunization of pregnant ewes with a view to protecting lambs during the first few weeks of life was advocated in view of the transference of antitoxin to the lamb via the colostrum, as demonstrated by Mason, Dalling, and Gordon in lamb dysentery in England. He had confirmed this work for enterotoxaemia in Australia.

Dr. C. W. Adey (Melbourne) said that when a toxin from a culture of *B. welchii* was produced it was tested by intravenous injection into mice: with a relatively large dose the mouse died within two minutes with a convulsive seizure, and death was due not to the true toxin of the *B. welchii* but to a pseudotoxin. The true toxin contained an element which was haemolytic. When a human being was suffering from the effects of the toxin of the *B. welchii*, whether the lesion from which it was absorbed was in an injured limb or in the genital tract, the haemolytic effect in that human being was obvious. In the patient suffering from acute obstruction of the small intestine there were no such signs of gross destruction of the blood. He put forward these facts as evidence that the true toxin of the *B. welchii* did not, as a rule, play a major part as a cause of the symptoms observed. This was difficult to explain, as there seemed to be every bacteriological reason that it should be. Numerous workers had observed that the *B. welchii* had proliferated intensely in the contents of the obstructed small intestine. Since these contents must often represent a fairly favourable bacteriological medium it seemed highly probable that in a large number of instances toxin of significant potency must be produced. One would naturally infer that the toxin of *B. welchii* was not absorbed through the intact mucosa. The value of the study of infectious enterotoxaemia of sheep was demonstrated. The toxin of *B. ovitoxicus* was apparently absorbed through the intact mucosa of the sheep's intestine. This disease closely resembled the conditions which occurred in intestinal obstruction in man, and it was reasonable to assume that the toxin of *B. welchii* might be absorbed through the intact mucosa of the obstructed human small intestine. Dr. Adey suggested that an explanation of this pathological paradox might be that the poison made by *B. welchii* within the obstructed small bowel, and absorbed into the system of the human patient, might be the pseudotoxin already described. The toxaemia might not be due to the activity of bacteria at all. If it were, it seemed that the pseudotoxin was likely to be among the toxins taking part.

Dr. Lionel Bull (Melbourne) agreed with what Dr. Adey had said, except that he did not think that haemolysis occurred in *B. welchii* infections unless the blood stream was invaded. The organism of infectious enterotoxaemia was distinct from *B. welchii*. He discussed the capacity of the secretions of normal bowel to activate the toxins of this organism. The capacity of the organism to cause symptoms in animals was distinctive, and there was no evidence of *ovitoxicus* infection in man. The disease was confined to ruminants, and was not found in animals with a simple stomach.

Problems in Virus Disease

The second discussion ranged round virus diseases, and Dr. F. M. Burnet, of the Walter and Eliza Hall Institute, Melbourne, opened it by reviewing inapparent virus infections with special reference to Australian examples, such as *X* disease (possibly a form of louping-ill) and psittacosis. As in the case of certain forms of yellow fever, it was now clear that almost inapparent forms of the disease might occur, and yet confer a high degree of immunity. In psittacosis the infection might proceed from apparently healthy birds, and Dr. Burnet's special investigation in 1934-5 had provided evidence that in a number of the Australian parrots and cockatoos it was widely prevalent in nature. He concluded that the virus of an existing disease had demonstrated its power to survive an epidemic probably by passage through hosts not seriously affected. Psittacosis in Australian and Californian parrots was associated with a virus of high infectivity but low virulence. In general, whether in man or animals, the younger members of the community were more likely to present the least obvious symptoms. In human psittacosis as in typhus the greatest intensity of the disease was to be seen in the more adult section of the population. This relative non-susceptibility of the young was a clear adaptation to allow survival in the presence of pathogenic micro-organisms until specific adult immunity could be developed. From the time when the first human communities developed down to the beginning of the bacteriological era, there had been an uneasy equilibrium between the human species and the various pathogenic micro-organisms. Within the last fifty years a serious attempt had been made to disturb this oecological equilibrium to man's advantage. The safest way to progress was to maintain the natural source of protection —namely, the inapparent infection.

Professor H. K. Ward (Sydney) paid a tribute to the brilliant achievements of the groups of workers who had apparently opened the way to the ultimate control of epidemic influenza. He discussed various aspects of virus immunity, and drew attention to Zinsser's observation that European typhus occurred in Boston and New York only among emigrants from the typhus countries of Europe. This suggested that the rickettsia persisted in the cells, and that in a certain percentage of cases immunity broke down and a relapse resulted. In his opinion, in cases of long-standing immunity it was more probably correct to suppose that the virus persisted in the cells, continually stimulating antibody production, than to suppose that the virus disappeared soon after infection and that subsequent generations of cells continued to produce antibodies without any specific stimulation.

Dr. Lionel Bull (Melbourne) said that the fundamental principles on which knowledge of resistance to infectious

diseases had been built was acquired mainly from the study of bacterial diseases. The existence of a fundamental mechanism which infection excited into activity with the production of immunity was certain. He likened the immunity reactions of the body to the reactions to foreign protein. Bacteria were far more complex in structure than were viruses, which were capable of giving rise to a stronger and more lasting immunity. He thought the reason for this was the fact that the viruses were intracellular parasites, while bacteria were not. In support of this, he said that a lasting immunity to east coast fever in animals was produced by *Theileria parva*, an intracellular protozoan, while little or no immunity was produced by *Piroplasma bigeminum*, an almost identical parasite, which invaded the red blood cells only. He referred to the fundamental differences between viruses and bacteria, and discussed the work of Sabine with regard to the mechanism of resistance to virus infections. Though the cells of the body were capable of reacting to different types of infection, he thought that there was only one mechanism of immunity in the animal body. Inapparent infections were found only in endemic areas. In the sphere of animal diseases there were viruses which were capable of killing 90 per cent. of the animals exposed to infection, and in these cases inapparent infections were unusual. He instanced South African horse sickness. He believed that the establishment of a more or less stabilized equilibrium between the virus and the host was a matter of time. Dr. Burnet had dealt mainly with diseases with only one host, in which more than one species was involved, as in rabies; and in bubonic plague, and in diseases in which man was only the chance host, no such equilibrium might exist, especially in the chance host. The inapparent infections seemed to be commoner in diseases due to viruses of low pathogenicity such as poliomyelitis and louping-ill. He criticized Dr. Burnet's statement that the younger the individual the more likely would a given infection be to take an inapparent form. It was, he said, difficult to find evidence for or against this view.

Dr. E. V. Keogh (Melbourne) drew attention to the technical problems involved in attempts at confirmation or disproof of the hypotheses advanced. In this connexion he regarded the refined technique of titration of virus suspensions and of antiviral sera on the chorion-allantoic membrane of the developing chick embryo, a technique developed within the past few months by Dr. Burnet, as of prime importance. The accuracy of such titration was of the order of five hundred times that of titration in the living animal, as usually performed. The use of this technique, whereby one enumerated the actual number of lesions produced on a living membrane, and studied the modification of such lesions in appearance, size, time of appearance, etc., by immune sera, should lead to new conceptions of the modes of infection and survival of viruses. Such methods were in use in studying at the present time an epidemic of laryngo-tracheitis in fowls in New South Wales, and the results of such an investigation should have important bearings on the epidemiology of virus diseases in man. Professor C. E. Hercus (New Zealand) stressed the importance of environmental factors in the relationship between host and parasite. He referred to the higher age incidence of poliomyelitis when that disease first became evident in New Zealand. To-day the disease was more common in children. He thought that a state of equilibrium between parasite and host had been reached, as poliomyelitis was not now found in an epidemic state, but there were sporadic cases.

Dr. Burnet, in reply, said that he thought there was no essential difference in the epidemiology and immunity phenomena of bacteria and viruses. Persistent infection giving rise to immunity varied with the nature of the organism. It was unimportant in diseases such as yellow fever, but was important in diseases such as malaria and syphilis. He believed that repeated contact with the virus in a community was important in the persistence of immunity. In New Zealand, he said, epidemics of poliomyelitis were still likely to recur, even though a state of equilibrium appeared to have been reached.

SECTION OF PHARMACOLOGY

Thursday, September 12th

Hypnotic Drugs

With Professor Sydney Smith, a Vice-President of the Section in the chair, a discussion on the use and abuse of hypnotic drugs was opened by Sir William Willcox (London), President of the Section, who made full reference to his address on the same subject, at the Annual Meeting at Brighton in 1913. He pointed out that the too-early resort to these drugs might lead to lack of self-reliance and the patient regard them as essential. Sleep induced by drugs was not as good as natural sleep. After a careful review of the action and uses of the barbiturates, he emphasized their dangers, and then detailed the indications for alkaloidal hypnotics such as morphine and heroin. In their case the timorous prescribing of ineffective doses was more likely to lead to addiction than was the prescribing of adequate amounts. Morphine might be generously given in organic disease provided that measures were taken for the removal of the cause of the symptoms; its use and that of heroin in cases of physical disease or neuralgic pain was attended with risk of addiction. Both drugs had an enhanced toxic action in the very young and the very old, and both must be used with the utmost care in lung diseases owing to their powerful action on the respiratory centre. Both were also poisons to the liver and kidney, and even small doses were dangerous when there was any evidence of defective functioning of these organs. In such cases a full therapeutic effect might be obtained from minute doses. Sir William Willcox did not think that recently introduced substitutes, such as eukodal, dicodid, and dilaudid had any special advantages. Numerous illustrative cases were cited. One showed the powerful and fatal effect of a barbituric acid drug on a susceptible patient with renal allergy, and another exemplified the risk to life of luminal in a case of cardiac allergy, the patient, who had a history of insomnia and neurosis, having been a habitual taker of this drug.

Professor R. D. Rudolf (Toronto) thought the discussion of insomnia might be simplified by considering it under two headings: (1) irritability of the central nervous system; (2) amount of irritation. Very little irritation such as noise or pain would cause insomnia. Hypnotics, with the exception of those that relieved pain, such as morphine, etc., lessened the irritability of the central nervous system. Before using hypnotics one should lessen the amount of irritation. He was pleased to hear Sir William Willcox mention the use of acetylsalicylic acid in combination with barbiturates. Dr. N. W. Markwell (Brisbane) thought that chloral hydrate and bromide of potash were the best hypnotics in pneumonia. He asked about the best hypnotic in extreme wakefulness associated with weakness after prolonged fever, a condition described as post-critical delirium. The best treatment he himself knew was the use of bromide of potash. He thought the condition was analogous to that of a patient suffering from coronary thrombosis who was almost moribund but to whom large doses of morphine gave relief. In the type of case mentioned large doses of bromide could be given without bromism showing itself. He thought amytal to be a very satisfactory drug in coronary occlusion after the pain had been relieved by morphine.

Dr. D. G. Renton (Melbourne) asked if it was a common occurrence to find that the first dose of paraldehyde was satisfactory but the second dose not satisfactory. He also asked whether barbiturates produced excitement instead of sedation. In his own personal experience with a dose of 12 grains of sodium amytal given in divided doses amnesia occurred for twenty-four hours, but he had been able to discuss matters rationally. Morphine relieved pain following operation in his own experience, but did not produce sleep. Chloral hydrate and potassium bromide gave excellent sleep. Dr. Z. Mennell (London) considered that amnesia following the use of avertin and barbiturates lasted for twenty-four hours, and was a dangerous condition. Twice two made

six, and not four, when one was dealing with drugs. Synergism played a large part in the action of drugs. The question of performing a lumbar or cisternal puncture was interesting, but it was a fact that it did bring back to consciousness patients who were suffering from the effects of barbiturates. He preferred morphine to heroin on account of the great respiratory depression of the latter. The synergism of heroin with evipan was more marked than with morphine. Morphine given intravenously had a marvellous effect on the type of case quoted by Dr. Markwell, but required care and minute doses.

Dr. B. L. Stanton (Melbourne) thought that the barbiturates were cumulative, as instanced by the marked effect of small doses in the treatment of high blood pressure. In the nervous irritability of children small doses of barbiturates were beneficial. In treating a case of veronal poisoning with apomorphine a deeper coma had resulted. Codeine in conjunction with aspirin was a very good analgesic and hypnotic. Dr. Ivan Maxwell (Melbourne) thought that there was great danger in using a combination of barbiturates with an analgesic such as amidopyrine. He had seen patients in whom one half tablet of aspirin caused definite spasm of the bronchioles. Many asthmatics were susceptible to this drug. Skin tests showed no reaction. Sir William Willcox, in answer to Dr. F. L. Davies, said he did not think barbiturates should be used in pneumonia ; they were not powerful enough. No drugs could cause pneumonia as much as they could. He had seen pneumonia following the use of 3 grains of nembutal ; this condition was confirmed by six other medical practitioners. He thought it was necessary to produce sleep in pneumonia during the first few days with such drugs as morphine and atropine. In reply to Dr. Markwell, he said that physical measures such as hot packs and sponging were better than drugs. They should try the simple methods first. He was rather timid about giving such large doses of bromide of potash as Dr. Markwell mentioned. In prescribing barbiturates it was advisable to use those to which one was accustomed. He agreed with Dr. Renton concerning the use of paraldehyde. Morphine relieved pain and in a considerable percentage of people it caused excitement rather than sleep. In regard to Dr. Stanton's remarks, when he (Sir William Willcox) stated that the barbiturates were not cumulative, he spoke as a chemist. They did not accumulate, but their effects did. Veronal took two to three days to be excreted, and if doses were given at short intervals then there was chemical accumulation. To Dr. Simmons, who asked what drug was appropriate for insomnia in pregnancy, he said that one had to consider the effects on the child in using hypnotics ; it was wise to adopt simple methods. He did not recommend the use of barbiturates.

Urinary Antiseptics

Mr. J. Thomson Tait (Melbourne) opened a discussion on urinary antiseptics by dealing with the possibilities offered by these drugs of overcoming urinary infections and with the underlying pathology of this action. The sterilizing effects must be relatively inefficient and of short duration in the kidney and bladder, and there was a possibility of damage to living tissue. In the ordinary uncomplicated cases of chronic renal infection there were two factors: an abnormal absorption into the body of bacteria and a decreased destruction of them after entry. Both these factors were dependent on lowered resistance, one of the main causes of which was mental exhaustion from overwork, worry, and strain. A necessary preliminary to treatment was exact diagnosis, and such possibilities as stone, tuberculosis, new growth, and intestinal obstruction must be excluded. The exact distribution of the infection must be determined by ureteral catheterization and bacteriological examination of the specimens ; double pyelitis would often be found in the absence of any local symptoms pointing to renal infection. Some estimate must also be made of the pathological anatomical changes which had been induced in the kidney, pelvis, ureter, and bladder. Until it was possible to control the sources of infection as well as to ensure a free flow of urine from the kidney tubules to the exterior of the body the search for a successful urinary disinfectant was likely to be unfruitful. Hexamine was one of the most effective, and in most cases the urine was sufficiently acid to permit the liberation of formaldehyde, this drug should be given between meals, when the acidity of the gastric juice was at its lowest level. It was also useful as a prophylactic in operations upon the female pelvic organs or the bowel. The value of hexylresorcinol was no greater, and indigestion might follow its use. In infection by *B. coli*, thorough alkalinization of the urine was effective in early stages, especially when associated with a ketogenic diet. Dye preparations such as pyridium and neotropin had a marked antiseptic value and a good penetrating power as regards the tissues. The indications for intravenous treatment in urological cases were few ; in *B. coli* septicaemia no lasting effect had been produced thus, while the immediate reactions were very severe. Results would be improved by attention to controlling the source of infection, enhancing the natural bactericidal powers of the body, and ensuring a free flow of urine as an antiseptic fluid throughout the urinary tract.

Mr. H. Mortensen (Melbourne) said that the term "urinary antiseptic" was commonly applied to a drug given internally and excreted in urine, and therefore excluded drugs used locally. The number of urinary antiseptics had increased tremendously during recent years, but it was doubtful whether the efficacy of these drugs had increased to the same extent. Some of the more commonly used, such as hexamine, were excreted unchanged. A large group were excreted in altered form, being fixed in the blood stream or in the kidneys—for example, turpentine and copaiba. Some had a diuretic action, which led to an improvement of the condition, and this was thought to be due to antiseptic action. No ideal urinary antiseptic had yet been found. In their use it was necessary to make an accurate diagnosis of the site of infection, the causative organism, and the predisposing and exciting causes of the infection. Urinary antiseptics might be discussed under three headings: (1) those producing diuresis, (2) those with direct antiseptic action, and (3) those producing an alteration in the reaction of the urine. Those which had stood the test of time were hexamine and acriflavine. According to Heathcote of Cairo two factors were necessary to attain antiseptic action when a patient was taking hexamine: (1) acidity of urine ; (2) a suitable time of exposure. As regards the potency of acidifiers, acid sodium phosphate had low acidifying value. It was better to use some such substance as ammonium chloride. Ammonium benzoate had a higher value than acid sodium phosphate. For coccal infection Mr. Mortensen mentioned the intravenous use of arsenic preparations. They were of great value in resistant cases. Treatment by alkalinization in acute infections gave excellent results ; large doses of potassium citrate or bicarbonate being used and the treatment being continued both night and day. He also mentioned the ketogenic diet in the treatment of urinary infections and the work of Clark thereon, and referred to the inefficiency of hexamine in catheterization. In continuous catheterization with an indwelling catheter the bladder was always empty and the hexamine was unable to act, but in intermittent catheterization the bladder was full at intervals and the hexamine had time to act.

Dr. Ivan Maxwell (Melbourne) said that hexamine had to undergo decomposition into formaldehyde before becoming efficient. It was difficult to obtain a *p*H value of 5 that would cause decomposition and inhibit the growth of organisms. Not only was the patient unable to keep the urine in the bladder for a sufficient period of time, but the quick passage of urine from the pelvis of the kidney helped to cause the difficulty. In catheter retention cystitis it was found that hexamine had no therapeutic effect.

Sir William Willcox thought that the whole field had been reviewed critically. He was in agreement with Mr. Tait and Mr. Mortensen. It was important when dealing with urinary antiseptics to change the antiseptic. One should give a drachm of citrate combined with potassium or sodium bicarbonate in each dose, and this

should be pushed for three or four days ; it should then be stopped and hexamine should be given. In England they were using " metramine compound," a combination of hexamine and methylene-blue, and from his experience it seemed to act better than when the drugs were given alone. Some patients found it difficult to tolerate a ketogenic diet. One aspect of urinary infection had not been mentioned—namely, vaccine treatment. If a vaccine was prepared and used judiciously it was a great addition to the treatment. Allergy played an important part in the treatment of disease. Some patients tolerated vaccines badly ; they were allergic. Vaccine should be used scientifically, and the tolerance of the patient had to be determined. Vitamin preparations should not be forgotten in building up immunity.

SECTION OF DERMATOLOGY

Wednesday, September 11th

Staphylococcal Skin Infections

Dr. J. Ivan Connor (Melbourne) opened a discussion on this subject by enumerating fifteen conditions due to infection by staphylococci which came under the care of the dermatologist. The infections tended to remain pure, cases of sycosis, for example, seldom developing boils or carbuncles, and this might be due to the fact that different strains of the organism were concerned. The most troublesome and persistent types occurred in seborrhoeic patients who showed other manifestations of this condition, such as pityriasis, acne, or seborrhoeic dermatitis. Resistance to this infection had often been notably low since childhood. The multiplicity of remedies advanced suggested that none of them could be relied on to promote recovery in the obstinate cases. The most important aetiological factor was the strain of the infecting organism, its power to form pigment being no guide to its virulence. The observation that the blood serum in man and animals often contained measurable amounts of antitoxin had suggested a new method of treatment. The alpha toxin, which probably played the major part in human infection, was haemolytic, induced dermo-necrosis, was lethal to animals, and contained a leucosidin which destroyed white blood corpuscles. This toxin was not a simple entity, and it appeared that no single staphylococcal strain could be relied upon to provide the multiplicity of antigens which it seemed to be desirable to have present in toxins from which toxoids for use in human beings were to be prepared. In toxoid treatment the patient's condition and response were a sufficient guide. Of twenty-three cases of sycosis barbae twelve had been cured and the remainder much improved ; similar good results had been obtained in severe seborrhoea and other staphylococcal conditions, with the exception of cases in which there was a focus of staphylococcal infection such as an infected sinus or pyelitis, which would require surgical treatment. An antitoxin of high titre had been used, particularly in Canada, with success. The administration of antitoxin in the acute stage might well be followed during convalescence by injections of toxoid in order to stimulate and maintain the natural antitoxin of the patient at a high titre.

Dr. F. T. Morgan (Melbourne) said that Dr. Connor had drawn attention to the likely influence of differences in toxins of infecting staphylococci upon the nature of the clinical response to immunization. He (Dr. Morgan) had been engaged for several years upon the production of toxins of the staphylococcus upon artificial media. These toxins were used to immunize horses to produce protective serum. A method of classification of staphylococci according to their toxins which acted as antigens had already been employed by him, and the findings were about to be published. There was no apparent reason why, given the correct immunizing agent, a considerable degree of acquired immunity might not be developed by the injection of toxoid with beneficial clinical results in a large percentage of staphylococcal infections.

Dr. A. G. Butler (Canberra) recalled the prevalence in the Australian troops in Gallipoli and in Palestine of the condition known in Queensland as " the Barcoo rot," from the name of an outback district. The name " Barcoo disease " was accepted by the British Medical Research Committee as official for war statistics. Lieut.-Colonel (now Sir) Charles Martin had shown that this intractable superficial spreading ulceration (probably identical with " veldt sore ") was due to infection of the hair follicles with staphylococci of low effective virulence. Treatment by epilation and weak antiseptics usually produced a tedious cure. But if this was combined with a free diet containing fruit and vegetables the disease was much more readily checked. The cause was essentially twofold—staphylococcal infection in a dirty skin, and specific dietetic deficiency.

Dr. E. H. Molesworth (Sydney) said that he thought there was confusion of nomenclature regarding blepharitis. He did not believe that the ordinary case of blepharitis was due to the staphylococcus, but was a manifestation of seborrhoea. Sycosis was often difficult to eradicate, even when complete epilation was carried out. Not all patients with sycosis had seborrhoea, and he did not believe that seborrhoea was a predisposing cause of sycosis. For example, moustache sycosis originated in nasal secretion. He had found antivirus of value in the treatment of staphylococcal infections. The toxoid evolved by Dr. Connor provided a necessary new therapy for the treatment of staphylococcal infection.

Mycotic Infections

Dr. J. C. Belisario (Sydney) opened a short discussion on certain aspects of mycotic infections and their treatment. He said that vesicular eruptions of mycotic origin occurring on the feet and hands were one of the most troublesome skin diseases with which dermatologists had to deal. Five clinical varieties were prevalent in Sydney: the superficial vesicular ; the deeply seated vesicular ; the scaling or eczematoid ; the intertriginous ; and the hyperkeratotic or verrucose type. Many of these manifestations represented an allergic reaction of the tissues to toxin liberated from primary foci of infection in the toe interspaces or nails. The usual time for the appearance of these conditions was the spring or early summer, but outbreaks were now becoming more frequent in autumn, possibly due to an increased amount of exercise in occupational or pleasure pursuits. Other predisposing factors were intestinal toxaemia, orthopaedic conditions of the feet, the occupation and mode of exercise, neuro-circulatory disturbances, toxic foci, and worry and overwork. Dr. Belisario thought that the explanation of all these factors was to be found in the composition of the sweat, an alkaline tendency in that of the palms and soles favouring mycological infections there. The epidermophyton was rarely found in areas where the sweat had a higher hydrogen-ion concentration. Fresh lemon juice was effective in treating lesions of the hands, associated with a diet which tended to increase tissue acidity. Boric acid soon lost its effect owing to an inherent compensatory ability of the skin to assume a permanent alkaline reaction. It was possible that the vitamin content in fresh lemon juice might play some part in addition to the citric acid content. Bathing the affected parts in hot water containing liquor plumbi subacetatis increased the vascular supply and had a sedative effect. In the later stages weak tar or ichthyol applications to which salicylic acid had been added might be used, supplemented if necessary by *x*-ray treatment. Baths of mercury perchloride were useful also in the acute stages, accompanied by the application of 1 per cent. ammoniated mercury in lanolin. Infected foci between the fingers or toes must be eradicated, and similar treatment might be necessary in the case of the teeth and tonsils, followed by the injection of an autogenous vaccine. In four very chronic eczematized cases Dr. Belisario had been completely successful by giving high colon lavage three times a week for several weeks, leaving ichthyol in the colon between treatments and restricting the diet.

Dr. J. J. Witton Flynn (Sydney) said that recent investigations of his had convinced him that in Sydney 60 per cent. of the population were infected with tinea,

but of this number 10 per cent. of the infections were symptomatic and 50 per cent. asymptomatic. Fifteen years ago tinea of the feet had been found mainly among the more leisured classes; the condition was contracted at country clubs and golf courses. At present the whole community was involved. Surf houses were hot-beds of infection. Men were infected to a much greater degree than women. He thought this was due to women being more careful about running about in public places barefooted and to their use of silk stockings, which inhibited "sweaty feet."

Dr. A. G. Butler (Canberra) spoke of his experience with extensive outbreaks of epidermal mycosis among the cadets at the Royal Military College, Duntroon. The incidence was as high as 90 per cent. The disease affected chiefly the toes (interdigital clefts and nails), thighs, and groin; but he had seen cases of pruritus ani which he believed to be due to fungoid infection. Very strict measures were required to stamp out the visible infection, and the fungus itself proved in many cases ineradicable by ordinary measures. Dr. Butler had relied for treatment on antiseptic lotions—permanganate of potash, formalin, and mercuric chloride; and on dusting powders—boric acid and borochlorotone. Whitfield's ointment had not been found a satisfactory medium for treatment in the cadets.

Dr. S. W. Shields (Melbourne) said that possibly the increase might be partly due to recent increase in dermatological knowledge. A high proportion of people, especially in warmer climates, had a latent tinea infection. Dr. M. R. Healy (Melbourne) drew attention to the resemblance between tinea feet, acrodermatitis perstans, and pustular psoriasis. He found *x* rays of no use in the treatment of tinea of the feet, but they were of value for acrodermatitis perstans and pustular psoriasis. Dr. S. Watson Smith (Bournemouth) said that in Great Britain tinea infections were very common in boys' boarding schools. Dr. Belisario had made no mention of the use of various aniline dyes in treatment; these had been found most useful in Great Britain. A diagnosis of tinea should never be made without a microscopical examination.

SECTION OF PUBLIC MEDICINE

Thursday, September 12th

Pleural Effusion in Artificial Pneumothorax

In the Section of Public Medicine (Tuberculosis, Industrial and Tropical Hygiene), and including the History of the Development of Medicine in Australia, Dr. R. B. Rosenthal (Melbourne) opened a discussion on "The Incidence of Pleural Effusion in Artificial Pneumothorax, with special reference to Medical Treatment." Sir Henry Gauvain, the President, took the chair.

Dr. Rosenthal cited evidence supporting the view that this complication occurred in about half, while empyema ensued in from 5 to 10 per cent. of pneumothorax cases. After reviewing the clinical aspects of cases admitted to Gresswell Sanatorium from 1933 to 1935, he dealt with the possible aetiological factors, including trauma to the pleura, tuberculous infection, exacerbation of contralateral disease, and climatic effect. Small effusions seemed to be due to trauma only, and were reactionary; larger effusions were due to trauma plus infection; and a relatively small proportion of effusions were caused by tuberculous pleurisy. Calcium therapy did not seem to be efficacious in the prevention of effusion in artificial pneumothorax; cases for this procedure should be carefully selected, and regular screening was essential for refills. Attempts to compress the lung must be avoided, and the operation be discontinued before complications occurred if collapse was unsatisfactory. When an effusion was present calcium therapy was of doubtful value. If the quantity of fluid was small refills might be continued carefully, with the occasional aspiration of fluid for examination. A large effusion might be treated by aspiration and replacement by air as infrequently as necessary.

Dr. A. J. Collins (Sydney) said that in large effusions high specific gravity and cellular elements in most instances demonstrated their infective character. A negative bacteriological finding did not preclude tuberculosis. Smaller effusions were usually not tested. At the Royal Prince Alfred Hospital, Sydney, twenty-nine out of seventy-six patients had small effusions, all but six occurring late—after six months—suggesting that the reaction of the pleura to air was unimportant. Most of them, he agreed, occurred in patients with pleural adhesions, but he did not agree that the presence of adhesions was an argument for trauma as the prime factor in effusions. Rather, he thought, rupture of adhesions was part of a natural process due to pleural spread of infection and ending in tuberculous pleurisy. Trauma might cause a few of the small effusions. Repeated puncture through the same spot caused thickening and contusion with oozing. After pneumolysis small effusions occurred. Of seventy-six patients treated in five years at the Alfred Hospital by artificial pneumothorax and analysed by Dr. Morrow and Dr. D. Bye, forty-one (54 per cent.) developed chest effusions and twelve (16 per cent.) large effusions. Of the large effusions five later contained tubercle bacilli. Dr. Rosenthal had stated that because only 7 per cent. of tuberculous patients not treated by artificial pneumothorax developed effusions tuberculosis was not the cause of the effusion in 50 per cent. of patients under special treatment. Dr. Collins did not accept this statement. Many patients had early infections rapidly improving, whereas those treated were doubtless specially chosen as not likely to be naturally cured. Such dissimilar groups could not be compared. Had the patients in the former group been under close radiological supervision as in the special group small effusions would probably have been found in higher proportion. Trauma might cause small transitory effusion at any stage, but the majority of effusions, large or small, were tuberculous. The reasons were: (1) the physical character of the fluid; (2) the persistence for weeks—even months; (3) that adhesions themselves were evidence of previous pleural infection—in these cases probably tuberculous; and (4) effusions sometimes developed after discontinuance of treatment, and usually such patients deteriorated in health.

Dr. D. R. W. Cowan (Adelaide) said that in the early cases after three months' trial of ordinary measures he advocated special treatment; effusion was common, and the expanding process became slow. After discontinuance of treatment a large negative pressure might develop. Fluid as a rule needed no intervention unless unpleasant symptoms appeared. Dr. J. Bell Ferguson (Melbourne) pointed out that Dr. Rosenthal had been able to follow up his own patients' cases for years, and could avoid the discrepancies of different observers. Effusion tended to occur where the pressure increased rapidly. He agreed that small effusions were best left alone, and in large effusions with dyspnoea, tachycardia, a sense of oppression, etc., frequent aspiration and replacement by air was indicated. He had tried metaphan, 1 in 2,000 in olive oil, but now preferred to use it in gelatin, 2 per cent., instead. Dr. L. B. Elwell (Brisbane) recorded his experience in Vienna with Neumann, who claimed only 2 per cent. of complications by effusion. Even allowing for those not above the level of the diaphragm, Dr. Rosenthal gave 10 per cent. above this level. If trauma were the cause Neumann's technique would favour effusion. Rapid inflation, using a rubber bulb and a refill of 1,000 c.cm., was practised. Air embolism occurred in three or four cases a year with convulsions, hemiplegia, or facial palsy. In Britain and France air embolism was rare. In 150 cases Dr. Elwell had used tuberculin with good results, without effusion. Even although infection, not trauma, were the cause, the specific tuberculous process could be inhibited by tuberculin.

Dr. A. S. Walker (Sydney) contended that the effusions were exudates, not transudates. Soon after a sharp febrile reaction might occur and sudden spread of infection take place in part of the lung not previously infected. Particularly important were the economic conditions. A large effusion was a sinister happening. Aspiration and replacement of air should be as infrequent as possible.

Dr. H. Watson (Melbourne) found the oil basis for gomenal unsuitable, as it tended to float on top of the effusion. Acriflavine 1 part in 500 of gelatin was useful. Metaphan in gelatin was on trial and was useful. Owing to the thickening of pleura recovery might be slow. Dr. W. J. Newing (Melbourne) criticized the old type of air filter, which he thought might spread infection. Dr. Rosenthal, in reply, said that trauma precipitated the process, and that these infusions would not have occurred but for artificial pneumothorax. All fluids aspirated were exudates, but this did not disprove the traumatic effect as the primary factor. He considered the general conditions to be important. Patients should be able to live under good conditions. Alcoholic patients often did badly.

SECTION OF MEDICAL SOCIOLOGY

Thursday, September 12th

Australian Aerial Medical Services

With Dr. E. Kaye Le Fleming in the chair, a discussion was opened by Dr. Allan Vickers (Sydney) on the Australian Aerial Medical Services.

Dr. Vickers described the development of the "flying doctor" service from its establishment at Cloncurry in 1928 to the present day, and indicated the further extension which was now contemplated. The Australian Inland Mission had devised a special wireless system with automatic transmitters for use by isolated stations in connexion with it; these sets were also used for the transmission of telegrams, and in 1934 no fewer than 185,000 words had thus been sent. Since messages could be dispatched vocally, it was possible for a central medical officer to discuss an urgent case with the relatives, make a provisional diagnosis, and advise interim treatment until the ambulance aeroplane could remove the patient to the nearest hospital. The area covered by the Cloncurry service was rather larger than that of the British Isles, but longer flights were occasionally made. It contained six small towns with hospitals and resident medical practitioners, and two others where there were resident nurses working under the supervision of doctors who paid occasional flying visits as required. Medical equipment could be supplied to other medical practitioners on demand. A mantle of safety had thus been provided for Queensland, and its colonization had been promoted. A Victorian section had been formed in 1934, and a West Australian section was now coming into being. A contributory scheme of financial support was being established. Dr. Vickers concluded by visualizing a British Empire Aerial Medical Service, and sketched its advantages.

The Rev. John Flynn expressed deep appreciation of the interest which the British Medical Association had taken in this meeting. He would content himself with emphasizing some of the points which had been raised. It was particularly interesting to him, having passed through the process, to note the public enlightenment in recent years upon the interior of Australia. The word "desert" was becoming one of the most familiar words in Australian speech. Loneliness at the Australian frontiers was a feeling absolutely unknown to Europeans. Most people would agree that in extremely difficult cases of illness the patients should be taken to a city, but there were small centres within reasonable distance of the interior with a population of one thousand, capable of dealing with 99 per cent. of cases that came along. He was told by Professor Griffith Taylor that in those parts where the rainfall was below ten inches in the year, it was likely that for many years to come the population would be just the same as it was to-day, and because of that medical services had to be planned for the lonely people in those parts. The three medical bases started by the Australian Inland Mission—namely, at Port Hedland, at Wyndham, and at Cloncurry (seven and a half years operating)—were still in the experimental stage, and it was hoped to have them transferred soon to the Australian Aerial Medical Services. The thirty-five wireless stations in the interior should be increased to five hundred. The area served by the additional wireless transmitting sets would be less than the experimental area. Under the new regime he hoped that Dr. Fenton would be relieved of some of the heavy burden which he carried to-day. He was doing good work in the Northern Territory. It was desirable that improved transport facilities should be provided to enable relatives to follow the patient into hospital. One family took three weeks to return home. It might be necessary to take an occasional patient to one of the great metropolitan hospitals for special treatment. It is important: (i) that the work of the Aerial Medical Service should be co-ordinated with that of all local hospitals and medical services; (ii) that the project should be Australia-wide, working under one general ideal, one sentiment; (iii) a "British Frontiers Medical Union" of some kind should be organized.

Dr. J. Newman Morris (Melbourne) said that the problem was to afford efficient aid to every isolated pioneer, a need which had been met in various ways in different parts of the world. The pioneer needed this assistance no less than the man on board ship unprovided with wireless equipment. It had been proved that in the vast empty spaces of Australia a useful medical service could be supplied. The Western Australian Government had provided Dr. Coto with the means of flying, wireless equipment, the maintenance of the medical posts at Port Hedland, and £1,200 per annum to keep the plane in the air. The plane was named the "Dunbar Hooper" to commemorate the work of the late Dr. Dunbar Hooper, and he hoped that the Port Hedland plane would be called the "John Flynn." The aim would be to bring every settler within twenty or thirty miles of a transmitting wireless set. There was no fear of any encroachment upon private practice, no fear of supersession or overlapping of the work of other medical practitioners. Undoubtedly it would be part of the medical services of the whole country in the future. The new system would bring medical aid to every settler within a space of three or four hours.

Dr. George Simpson (Melbourne) said he felt privileged to have been associated with the development of the aerial medical services in Australia from the beginning. Only those who had lived and travelled in the vast empty lands of Australia could fully realize the needs for such a service. Only those intimately connected with the service could appreciate the difficulties that had been encountered and overcome in its development. Members from Great Britain would be interested to know that very helpful advice and assistance had been received in the early days from Colonel G. A. Moore, deputy chief commissioner of the St. John Ambulance Brigade. It was strange that they should find a parallel between conditions in Australia and those in the North of Scotland. Australian Aerial Medical Services were improving conditions of medical practice in the same way as the Highlands and Islands Service was doing, so that men of high professional capacity were attracted to the work.

Colonel C. I. Ellis (surgeon in charge of the St. John Ambulance Brigade) said that he came to be informed, but he could say that he was thrilled with the work done and with the advances that had been made by the Australian Inland Mission aerial services. He thought it would be well if the settlers were to be instructed in the principles of home nursing and hygiene before going to the isolated outposts. In England they had formed an Air Ambulance Detachment—one in Surrey and three in Lancashire. Voluntary Aid Detachment nurses were trained to go in air ambulances to nurse the sick; there were twelve nurses trained for this purpose.

Dr. Le Fleming expressed his thanks to Dr. Vickers for so clearly putting before them the story of the extension of the medical services, which to him seemed like a romance and one which must have a far-reaching effect in other countries of the world. It required little vision to see to what extent the service could develop. He congratulated Dr. Vickers upon the great pioneer work, which must prove of inestimable value to the whole of civilization.

Social Aims of Mental Hygiene

Professor Harvey Sutton's opening paper, entitled "The Child Guidance Clinic," appeared in the *Journal* of September 14th (p. 495).

He reviewed in turn the principles underlying the correction of bad habits, the problem of stammering, the influence of minor defects on mental and physical progress, and the child's development in the pre-school period. He said that parents were often too closely in contact with the child to preserve that dispassionate outlook which was so essential in remedying emotional lack of balance and control, and which could be so effective a weapon in the hands of the medical practitioner or psychologist. Child guidance clinics might well be run in connexion with hospitals or schools, but many parents preferred them to be separate institutions. In the last case, however, it was necessary to establish definite control over the organizers. Problems of personality must be approached along biological and physiological as well as along medical lines; the psychologist had a definite field of activity, but it was not the only one.

Dr. K. S. Cunningham (chief executive officer of the Australian Institute of Educational and Vocational Research) said that the medical profession had to take the chief responsibility—the initiative—in the care of the problem child. The social worker had not yet reached such a standard of training as to command the full respect of the community. Probably all child guidance clinics were beyond the scope of the educational departments, but all children were in need of child guidance, and every teacher in his own sphere was conducting a child guidance clinic. A greater interest should be awakened in regard to the changing emotions, disordered habits, etc., of the school child. He would stress the care of the normal and of those who departed more or less from it. He would say that 40 or 50 per cent. of children had suggestions of some behaviour problem, some type of difficulty which needed special care and attention. Sex education provided a difficult problem. It was not an easy matter to decide when it should be done.

Mr. G. A. Osborne (senior inspector of the State Education Department) said that he was not a medical man, but an educationist in mental health and hygiene. He made sex education strictly taboo. No class of sex education was admitted to their schools, but might be given by a senior assistant teacher at the request of the parent. He thought that corporal punishment had practically disappeared from schools, the reason being that a better understanding between teacher and child was definitely established, and this was good for the mental health of the pupil. In the Education Department stress was laid upon the part played by training and environment and the importance of the family life of the child. More should be done for the child in the pre-school age by the provision of kindergarten schools, nursery schools, and by an additional number of trained social workers. In the special schools which the department had established for the mentally weak child provision was made for 200 pupils only. A weakness in the scheme was that there were insufficient social workers operating outside the schools to discover the children, and they were lacking in trained psychologists. If their children could get more special attention from the medical profession they would do better. The school children were encouraged to take an interest in various clubs—for example, "League of Youth," scouting, etc. Professor J. A. Gunn (Melbourne) said that close co-operation was required between the medical man and the social worker. In this way progress would be made along the right lines. They had been told at the cathedral service by Bishop Hart that they must look at the whole personality. Anybody could call himself a psychologist, and the man in the street was hopelessly confused about the term. He would like to see training in psychology. The medical students were demanding more psychology in their curriculum, so that they might be better able to deal with communal problems. Many of the disturbances of personality had their origin in fear; others had a sex origin. During the war so-called shell shock was seen mostly in people who had had some previous shock in their childhood. When sex education had been neglected it often gave rise to maladjustment in married life, with consequent domestic unhappiness, and most of this was due to ignorance. He could see no harm in teaching the child its relationship to the mother and, later on, the relation of the mother to the father.

Dr. R. S. Ellery (Melbourne) said that a movement which aimed at the conservation of a country's mental health must touch at some point or another every department of human activity, but ultimately it was true that with the wiser training and understanding of children much social pathology might be prevented. The teachings of Freud and others had in the last twenty-five years altered the outlook of people upon the criminal, and had shown the way to investigate the subconscious motives which were at the back of every criminal action. The duty of disciples of the mental hygiene movement was to endeavour to alter the country's attitude towards crime and punishment, and to seek to find and cure the individual maladjustments which were conditioning criminal behaviour. There was need to deal in an enlightened and scientific way with the problem of juvenile delinquency. When a judge punished a criminal he was punishing something criminal in his own subconscious mind. Side by side with an alteration in the public's attitude to crime and punishment there must proceed an investigation into the causes of delinquency. Prevention of crime was a task that centred in the study of the delinquent child.

Dr. N. A. Albiston (Melbourne) said that a problem which was fundamental in medical sociology was the question of the family as an efficient social unit, and it involved all aspects of society. In Australia, where the family was at least nominally recognized, its status had been weakened by such social institutions as the nursery school, the kindergarten, and by such legal enactments as those relating to compulsory education, vaccination, and health inspection and its consequent remedial measures. The policy of child guidance clinics should be to conserve as far as possible the parent's capacity to deal with the problem. Dr. J. F. Williams (Melbourne) said that the psychiatric clinic at the Children's Hospital had been established by Professor Berry in 1925. The Wilson Trust assisted to finance the venture, which provided for the services of a clinician, a social worker, and a psychologist. During the financial depression funds were no longer available, and they were compelled to carry on with voluntary help. The work had steadily increased from seventy-five to two hundred new cases during the past year, a large proportion of the patients being mentally deficient children who had to be dealt with in some way or another. He wished to emphasize the lack of suitable institutions in the State for these children. The present position was touching only the fringe of the problem. The occupational or nursery school offered a very satisfactory solution for some children. Professor W. S. Dawson (Sydney) said that child guidance should remain within the ranks of the medical profession. The teaching given to students should have a biological background. In regard to mental deficiency the public mind was inclined to attach too much importance to institutional care. Dull normals, by reason of their modified degree of intellectual failure, were unable to benefit by ordinary schools, and failure to make adjustments in the training of the class was responsible for their training in the community. He regretted to say that very little provision was made in New South Wales for this class of case. Miss Hyslop (Director of Social Training, Melbourne) said that many irregularities in a child's behaviour had their origin in emotional tension. The aim of the teacher was to "sell" the child to the parent by enlarging upon the better side of the child's character; this was more satisfactory than the teacher handling the difficulty himself. Miss Hyslop stressed the importance of using trained social workers in this sphere, but anyone could call himself a social worker in Australia as in England. The term "trained social worker" should not be allowed to be ambiguous.

The President (Dr. E. Kaye Le Fleming) said that his contribution to the subject would consist of a few

comments from his experience as a general practitioner who was interested in the medical care of boys in some of the great public schools. In regard to corporal punishment, he could say that he himself was brought up on it. He did not approve of it being administered at home, but he did not see how discipline could be maintained in a large boarding school without it. He felt sure that corporal punishment for girls was rarely carried out in England. It was still a difficult matter to explain nocturnal enuresis. He felt convinced that there was a developmental basis, and possibly an endocrine factor, in its aetiology. He agreed that there was little advantage to be gained in teaching children the structure of a daisy or a pansy as an approach to sex instruction. What they really desired to know was the facts relating to a man and a woman.

Dr. Harvey Sutton, in reply, said that he was greatly disturbed by Dr. Albiston's views about the status of the family. He always thought that the influence of child guidance clinics and of public health measures rather than weakening the family relationship did exactly the reverse. The child guidance idea, being brought before the people, gave the impression that parenthood was important. The nineteenth century had indeed discovered the child, and he prophesied that the twentieth century would be responsible for the discovery of the parent.

DEFECTIVE SIGHT IN CHILDREN

The People's League of Health has studied the subject of defective eyesight and desires that its views shall, in the public interest, be made widely known. The following notice has been issued to the Press.

It is quite possible for a child to have defective sight in one or both eyes and yet make no complaint either at school or at home. Children who have never experienced full clarity of detail cannot realize that they see objects indistinctly.

Parents should watch their children closely, and if they have any reason to think that a child's sight is less than perfect expert medical advice should be obtained without delay. Many children are accused unjustly of being dull at school when in fact they are handicapped by the inability to see properly and by the consequent nervous strain which is thrown upon them in straining to overcome the defect. Many minor ailments may be traced to the want of proper glasses.

It is of the first importance that children's sight should be entrusted only to specially qualified medical practitioners. In many cases defective sight is due to bodily ill-health—a doctor alone has the medical knowledge and training necessary to detect and treat such conditions.

With the co-operation of the medical profession those of limited means are now enabled through the National Eye Service to obtain for their children the expert medical eye examination which is so necessary, and spectacles made accurately to the doctor's prescription by a dispensing optician at low inclusive charges. Details of the National Eye Service, which has branches all over the country, may be obtained from any doctor or the headquarters of the People's League of Health, 12, Stratford Place, London, W.1.

G. Bombi (*Arch. Ital. di Chir.*, February, 1935, p. 425) records two personal cases of non-perforative biliary peritonitis in women aged 48 and 56 respectively, and has collected from the literature fifty-three others, of which thirty-one underwent successful operation, ten came to necropsy, and twelve were both operated on and came to necropsy. In the great majority of cases the onset is sudden, as in perforative peritonitis, but in a few it is slow and insidious. Typical symptoms of peritonitis are present. Jaundice is very inconstant, and only slight in degree. Examination for bile salts and pigments in the urine is usually negative. Fever may be absent or show no special features. The diagnosis is only possible by operation. If left to itself the condition is always fatal. Treatment consists of operation as early as possible. Both Bombi's patients recovered, one after cholecystostomy and the other after cholecystectomy.

England and Wales

Tribute to Sir Thomas Oliver

The governing body, staff, and present and past students of the Durham University College of Medicine, Newcastle, presented Sir Thomas Oliver, on October 8th, with his portrait in oils, as a tribute to his most distinguished career and in gratitude for the services he has rendered for so long to the College. The portrait was painted by Mr. T. B. Garvie of Benton, and Sir Joseph Reed made the presentation, with Sir Robert Bolam, president of the College, in the chair. Sir Joseph Reed alluded to the great work which Sir Thomas had done on industrial diseases, to his interest and practical help in so many and varied local interests, to his activity on behalf of the cathedral, and to his untiring devotion to the service of students and colleagues. In reply, Sir Thomas recalled the happiness of his work at Newcastle for some fifty years, and paid a special tribute to the younger physicians, who were so zealously maintaining the reputation of the College and of the Royal Victoria Infirmary. He remarked that he had sat under three distinguished presidents of the College, and, although he had had to wait thirty-two years before reaching the goal of his ambition, the chair of medicine, it had proved to be well worth the waiting period. In referring appreciatively to the present president and Professor Ranken Lyle, he recalled that Sir Robert Bolam had been his assistant in the physiological department when Mr. Asquith, then Home Secretary, had asked for a report from a committee as to the conditions in over twenty trades, which were then considered to be dangerous. That had led Sir Thomas to attempt to clear up the cause of death in cases of electric shock and to determine the means to be adopted in the treatment of those who had been rendered unconscious by electric charges. In this investigation he had been assisted by Sir Robert Bolam, and their findings had proved so reliable that they had met with general acceptance in all countries. Sir Thomas asked the College to accept the portrait from him as a souvenir of one of its professors who had spent many happy years among loyal colleagues, all collaborating towards useful ends. Sir Robert Bolam accepted the gift on behalf of the College, remarking that the words they had just heard were not those of a man who had finished his work: the presentation was merely another colourful episode in an illustrious career. Sir Thomas Oliver, who is 82, is a former professor of physiology and emeritus professor of medicine, and for eight years, until his retirement in 1934, he was president of the College of Medicine. The balance of the testimonial fund will be devoted to the establishment of an annual prize to perpetuate his name.

Central Midwives Board

The business dealt with by the Central Midwives Board for England and Wales at its October meeting included a letter from the Ministry of Health informing the Board that the Minister has approved Section D and amended Rule 28 (*a*) in Section E, and the alterations in Rules 2 (*a*), 27 (*b*), and 33 (*f*) in Section E of the rules of the Board, and that these, together with the remaining sections of the rules, are approved for a period of six months from October 1st, 1935. The Board having received a letter from Dr. W. C. W. Nixon tendering his resignation as supernumerary examiner at the London centre owing to his having obtained an appointment abroad, conveyed its best thanks to Dr. Nixon for his efficient services. After considering a letter from the medical officer of health for Rochdale, inquiring whether under the rules of the Board a midwife is required to enter in her register of cases cases of abortion to which she may be called, and whether she is expected to attend for the full period of ten days, it was agreed to reply: (*a*) That if a midwife attends a booked case all the rules of the Board apply, including attendance for ten days afterwards; (*b*) that if it is not a booked case, and a doctor is sent for privately by the patient or friends, the midwife may retire, in which case the rules of the Board do not apply, or she may remain

as a maternity nurse, when the appropriate rules do apply ; (*c*) that if, on the other hand, the midwife acts under Rule E 33 (*a*) and dispatches the form for sending for medical aid, she must regard herself then as a midwife, and all the rules of the Board apply ; (*d*) that the Board has no information with regard to the fees charged in such circumstances.

At an emergency meeting, held on August 20th last, the acting chairman, Dr. W. Allen Daley, formally reported the death of Mr. Herbert George Westley, late secretary of the Board, and, referring to the valuable services rendered to the Board by Mr. Westley, moved a resolution of regret and high appreciation, which was carried in silence, all members standing.

The Purpose of a University

In his inaugural address to the students of Leeds University the vice-chancellor, Sir James Baillie, said that the purpose of the university as it had been developed in Western Europe was the liberty and liberation of the human mind in the pursuit of knowledge—an object of supreme value to human life, which required particularly to be cultivated at the present day. Such freedom must be worked for and acquired. The self-reliance that it involved must be based on definite standards of thought and action, and also on standards of judgement. Without the latter, students would be at the mercy of the last person they had talked to, or the latest book they had read. The business of the university was to enable them to acquire this spiritual freedom by three means. There was, first, free intercourse between teachers and taught, such as they had not enjoyed in school and would never be in a position to enjoy again in after-life ; then there was intercourse with each other through the various students' societies ; and, finally, there was intercourse with the past through the university library. The present generation of Leeds students would be luckier than their predecessors, in that they would be living in intimate acquaintance with the new library building.

Rebuilding Westminster Hospital

At the quarterly meeting of the Board of Governors of Westminster Hospital on October 8th the Building Committee presented a report on the fund and the work now in progress on the site of the new hospital, St. John's Public Gardens, Westminster. Since the last meeting donations of £10,000 from Mr. E. W. Meyerstein, £1,000 each from Mr. Dudley and Mr. Bernard Docker, and further contributions exceeding £5,500—made through a special committee of which Mr. George Tilley of the Pearl Assurance Company is chairman—added to the existing fund of £9,000, have assured the future of the Medical School, although considerable money has yet to be obtained before it can be completed. The general rebuilding fund now stands at £157,000. Since the foundation stone was laid by the Prince of Wales on June 26th steady progress has been made on the site. Work is proceeding with excavation. In the basement there will be a gymnasium, with dressing rooms and shower baths, for the use of the students and, at certain times, for the use of the nurses. Under the Medical School will be a lecture room, seating 125, equipped with cinematograph and epidiascope, and a squash rackets court under the rising seats.

King Edward VII Welsh National Memorial Association

Extension schemes at present under consideration by the Welsh National Memorial Association include the reconstruction of a ward at the Glan Ely Hospital at Cardiff and of the women's ward at the Cymla Hospital at Neath, a new clinic at Wrexham, extensions to the Llangefni Hospital, the modernization of the South Wales Sanatorium at Talgarth, and the erection of a new hospital at Swansea. In his annual report for the twelve months ended March 31st, 1935, the principal medical officer, Dr. D. A. Powell, points out that in Wales as a whole only one in four patients referred to the association because of chest symptoms is found to be suffering from pulmonary tuberculosis, and only one out of eight patients referred because of signs and symptoms of tuberculosis elsewhere in the body is actually found to be a victim of that disease. Yet the incidence of tuberculosis among young adults is still very marked, and Dr. Powell stresses the need of regular tuberculin *x*-ray surveys of school children if the disease is to be detected at a time when it can be eradicated. In spite of the great educational efforts made there is little evidence that the general public is taking seriously the possibility of preventing tuberculosis. Dr. Powell believes that there will not be progress in this respect until the treatment side is much better developed and lists of patients waiting for admission to institutions are only a memory of the past. The one administrative measure that satisfies the claims of prevention and treatment is the provision of beds. The tardy recognition that pulmonary cases require at least as much rest as non-pulmonary ones, the much greater willingness of patients to accept institutional treatment and, after admission, to stay for the prolonged periods required, and the clearer realization by the community of the preventive value of segregation are emphasizing more and more forcibly the need of further institutional accommodation. Dr. Powell considers that the position has become acute since the association took over the responsibility for cases in public assistance institutions. In his opinion accommodation is urgently required also for silicotics with possible tuberculous foci, and it should be recognized at once that pleurisy is tuberculosis, and not merely a threat of its advent. On the research side Professor Lyle Cummins gives an account of the mass of work that is in progress. Included in the report are: a series of seven special studies relating to the useful prognostic and other findings which have been obtained from the epidemiological inquiry cards filled up by tuberculosis physicians ; a series of intradermal tuberculin tests ; a comparison between the results of intradermal tuberculin and the *x*-ray findings in a series of boy patients ; a survey of three years' admissions into Meadowslea Hospital ; a general survey of non-pulmonary cases treated at the Adelina Patti Hospital ; and an analysis of deaths from tuberculosis in Wales and Monmouthshire.

Scotland

Health of the Nation

At a visit to allotments in the neighbourhood of Dundee on October 4th, Sir Godfrey Collins, Secretary of State for Scotland, said, in an address on the improved health of the nation, that during the past seventy years the expectation of life at birth in Scotland had increased by sixteen years, and the reduced death rate meant that Scotland had saved over 33,000 lives in 1934. The infantile mortality rate in Dundee, which had been 208 per 1,000 births in 1890, had fallen to 74 in 1934. It was interesting to note that in Dundee, which had a very high proportion of women in industrial employment, the maternal mortality rate for 1934 was 5.5, as compared with the general rate for Scotland of 6.2. In addition to maternal mortality, they wanted also to attack such conditions as cancer, rheumatism, heart disease, and the disabilities of later life. The insured population of Scotland lost 16,000,000 days every year through sickness, and this was far too much. Sir Godfrey said he had been so much impressed by these considerations that two years ago he had appointed a committee to review what was being done by existing health services in Scotland, and to advise what changes were necessary to exploit fully the possibilities of raising the standard of health of the people. He expected that this committee would report in the course of the next few months. Good progress had been made in slum clearance, but there still remained the great problem of overcrowding. The last census showed that 15 per cent. of the people of Scotland were living more than three to a room, which was a percentage ten

times greater than that for England. The Government had therefore passed an Act securing for the first time in history a statutory minimum standard of accommodation, and towards this the Exchequer was giving a very generous subsidy. An interesting feature of the Government's work for alleviating the effects of unemployment upon health in Scotland had been the provision of plots of one acre of land, and on such plots 1,604 men were now at work in fourteen counties. An extension of this activity in the Dundee district had been made possible by the generosity of two prominent citizens, Mr. George Bonar and Mr. James Mathew, who had each gifted a farm to the Department of Agriculture for the benefit of unemployed men in the district.

Death Rates and Atmospheric Impurity

At a meeting of the Edinburgh and East of Scotland Sections of the Society of Chemical Industry and of the Institute of Chemistry in Edinburgh on October 8th, Lieut.-Colonel John du P. Langrishe of the Usher Institute of Edinburgh University, stated that statistical evidence showed a close relation between death rates and atmospheric conditions. The number of deaths from lung and heart diseases increased in direct proportion to the intensity and duration of smoke fogs. An example of this was shown by three periods of dense fog which affected Glasgow in November and December, 1909. Deaths from respiratory diseases during the week before the fog numbered seventy-five, and during a week with three days of fog they numbered 138, while in the ensuing week they rose to 233. Over the period of dense fogs the death rate from respiratory diseases rose from 2.1 per 1,000 persons to 13.9 per 1,000, while in seven other towns in which there had been no fog the rise during the same period was from 1.6 to 4.8 per 1,000. This difference in Glasgow had accounted for 1,000 actual deaths. Dr. Birket Wylam of the Department of Health for Scotland said that water supply and sewage had provided subjects for legislation, and rapid advance had been made in these matters, but the position of smoke abatement had remained much the same for the past fifty years. The domestic fireplace was the main offender, and probably caused two and a half times as much smoke pollution as the factory chimney, despite the fact that domestic coal consumption was less than half of the total. Mr. Alan M. Ritchie, sanitary inspector for Edinburgh, said that the British public had a persistent partiality for the open fireplace, and the most effective aim in the future would be to secure a sufficiency of smokeless fuel to replace raw coal.

Health of Mothers

Speaking at a conference of the council of the Women Citizens Association on October 5th, Mrs. Chalmers Watson said there had been a tendency to over-emphasize the danger of childbirth. It was important to stress publicly the fact that childbirth was a natural physiological process, in which departure from the normal occurred in only a small proportion of cases. If one took the industrial part of Scotland in the western area the mortality was 5 per cent. above the Scottish average, while in the eastern part of the industrial area, where there were more rural conditions, it was 8 per cent. below the Scottish average. In the western area the rate from sepsis was 13 per cent. above and in the eastern area 16 per cent. below the Scottish average. The figures for morbidity could be obtained by multiplying the mortality rates by ten. The Elsie Inglis Hospital had published the result of five years' work, and in the years 1925–9 there had been a mortality of 6 per 1,000 cases treated, while in the years 1930–2 this was reduced to 4 per 1,000, and in the last two years to 3 per 1,000. There was no necessity for every woman to be confined in an institution; women were really safer in their own homes if they had the proper doctor and midwife with a consultant available. The conference resolved to recommend to the Health Services Committee that arrangements should be made for every maternal death to be reported to a suitable authority; that for the lessening of sepsis proper laboratory facilities, dental clinics, and consultative services for ear, nose, and throat disorders should be available; that arrangements should be made for post-natal and gynaecological consultations at all centres; and that the maternity services should be strengthened by midwives holding the C.M.B. certificate being available for all women.

Child Welfare in Edinburgh

In an address to the Voluntary Health Workers Association of Edinburgh on October 5th Dr. John Guy, medical officer of health for the city, said that the first meeting of the association was held in 1908, when 170 voluntary workers entered their names. At that meeting Dr. Guy's predecessor in office had drawn attention to some facts regarding the city's infantile mortality rate—namely, that in a working-class suburb 89 children died out of every 1,000 born; in a congested and poor ward the mortality rate was 159; in another and similar ward it was 256; while in the poorest quarter of the city, the Cowgate, the rate was as high as 344. At the present time the figures for these poor areas were 80, instead of 159; 52, instead of 256; and 53, instead of 344. A great part of the credit for this belonged to the health visitors. The work of the association had enormously increased since 1908. Approximately half of the children born in the city now passed through the clinics.

Reports of Societies

TREATMENT OF NON-SPECIFIC COLITIS

In her presidential address to the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on October 8th, Dr. Dorothy C. Hare brought forward the results of some therapeutic observations on non-specific colitis.

"Non-specific colitis," she said, was a term for a clinical disease of which the cause was not known. "Ulcerative colitis" and "haemorrhagic colitis" were included under the same heading. The pathological changes were confined to the colon. Early inflammatory reactions in the mucous membrane might be followed by ulceration and proliferation with polyposis. The muscular coat was also profoundly altered, and the consistency of the bowel wall had been compared to that of wet blotting paper. In the more chronic conditions fibrosis followed the more acute inflammation and might lead to the development of a rigid tube contracted in diameter and length. In such a colon the ordinary functions were lost and incurable diarrhoea resulted. The clinical course was very variable, characterized by alternating attacks and recoveries, suggesting that the disorder was in fact persistent, though undergoing remissions. The onset was insidious, with trifling symptoms, which might precede a major attack by weeks or months. There was no rule as to the duration of an attack, and remissions might last for four or five years, though usually the time was much shorter, and with each attack the symptoms tended to be more severe and prolonged. Diarrhoea with blood was the most characteristic symptom, but constipation due to spasm was a frequent manifestation. The prognosis in cases with constipation appeared to be better than in those with diarrhoea. Relapses were often associated with intercurrent infections, chiefly catarrhal infections of the upper respiratory tract. Out of forty cases of relapse in her experience more than half had accompanied conditions such as quinsy, tonsillitis, nasal catarrh, and influenza.

Her remarks on treatment were based on an experience of forty-six cases. The special interest in treating a disease like colitis of which the aetiology was unknown was the persistent hope that one might hit upon a treatment which would throw light upon the unsolved problem. Unfortunately it had to be confessed that no treatment had been found to cure an acute attack or to prevent relapse. Treatment by irrigation of the colon was widely employed in this country, but in view of the fact that both the mucosa and muscle were highly

sensitive to manipulation and had a low resistance to trauma, irrigation seemed likely to be harmful and any evidences of benefit were inconclusive. Some cases suffering from a slight or moderate attack had recovered on being treated by lavage with a disinfectant solution, but whether the recovery was assisted by the treatment was a little uncertain. In acute cases recovery was retarded and the condition might be made more chronic. So sensitive was the mucous membrane of the colon that in a case in which colotomy had been done in the descending colon (after a mistaken diagnosis in the first instance), although there was no visible blood when the dressings were changed, she had seen the application of a cotton-wool swab to the exposed membrane cause immediately a slight oozing of blood from the apparently intact surface. Irrigation or investigations by sigmoidoscopy therefore were not to be done without risk. To establish the diagnosis the clinical history and an examination of the stools would usually be sufficient without more extensive procedure. Treatment by antidysenteric serum was introduced by Hurst and employed in very large doses ; it did not act in a specific manner, but improvement was reported in about 50 per cent. of the cases treated at Guy's. The results were probably due to a non-specific protein reaction. Dr. Hare herself had used this treatment twice only: in one subacute case a severe relapse was brought about, and in the other case no improvement followed. Bargen's streptococcal serum and vaccines had been without effect in the cases she had treated personally.

In intestinal disease the consideration of diet in relation to cause and cure was always of great importance, and especially so in non-specific colitis again because of its unknown aetiology. It seemed probable that a deficient diet was a predisposing cause. Particular attention had been directed to the vitamin B complex in relation to gastro-intestinal disease. Diets deficient in this complex had produced colitis in monkeys according to experiments made by McCarrison (1921) and repeated more exactly later by Lucy Wills (1935) ; the latter had also observed a form of colitis associated with macrocytic anaemia in Indian women, and both the colitis and the anaemia were rapidly cured by marmite, even when the patients were almost moribund. Unfortunately Dr. Hare had found no evidence that colitis in this country was ever due to vitamin deficiency. She had made clinical trials with yeast products in large quantities in acute and chronic cases without being able to influence the course of the disease or to prevent relapse. Vitamin A concentrates might be of importance. In experiments on rats these had been shown to be essential to the growth of the intestinal mucous membrane. In one acute case of colitis large doses of vitamin A were given, but the patient got steadily worse. Dr. Hare had been able to make sufficient inquiry into the previous dietary of thirty-one of her patients. The general character of the diet had been very good in three, good in ten, fair in eleven, poor in four, and very poor (chiefly very small quantities of starchy foods) in three ; but no parallelism could be found between quantity of diet and liability to the disease. A generous and well-balanced diet did not protect from relapse, though it played an important part in promoting recovery. Restriction of food certainly seemed to favour the development of colitis ; one of her patients had the first slight symptoms when taking a slimming regime, fasting from breakfast until supper. Milk alone was not generally acceptable as a diet, and the large bulk of the fluid seemed to increase the diarrhoea. Diet in general should be increased and include plenty of first-class proteins, also daily rations of fruit juices. The variations in individual tolerance must, of course, be studied. She had made some trials in liver therapy in colitis. Among her early cases was one in which macrocytic anaemia was present as a complication, and this was cured dramatically both of the anaemia and of the colitis, but in the five other cases in which she had given treatment with intensive doses of liver no improvement had resulted. The liver had been given both by mouth and by intramuscular injection and at different stages of the disease. Iron therapy was very beneficial in colitis with hypochromic microcytic anaemia, but it was without effect in acute cases or in chronic cases with no anaemia. An attempt to discover whether iron had some specific effect on the colon apart from influencing the blood had proved negative. Iron in acute cases increased the diarrhoea. She had found atropine effective in relieving spasm of the colon. It was given for attacks of colic and for acute constipation. The terrible spasms of colicky pain occurred day and night in this disease, and persisted even in convalescence. They were usually worse in the early morning or on rising, and injections of atropine seemed to be useful. Another result of the abnormal muscular tone associated with colitis was a condition of spasm leading to acute constipation, and this frequently preceded or followed an attack of diarrhoea. Sometimes constipation due to spasm might persist throughout an acute attack ; faecal motions, as distinct from discharges of blood and mucus only, appearing only at intervals of three or four days. Antispasmodic drugs relaxed the bowel and permitted the passage of a normal stool. But although atropine relieved the colic it did not apparently relieve the exhausting diarrhoea in the acute attack, and she knew of no satisfactory means of controlling the diarrhoea in chronic colitis.

General Discussion

Dr. H. W. Hales could not agree that irrigation methods were useless. He had been using for the last ten years the irrigation method with potassium permanganate originally described by Herbert Nott, and had seldom found it fail to yield some benefit, but certain rules must be observed. The blood pressure of the patient must be taken, and if this was under 115 systolic the patient must be kept in bed, perhaps for three or four weeks. The number of irrigations given might have to be as many as three or four a day at first. Again, the solution must be extremely weak. Colonic lavage could be of great value, but when it failed it was because it was not given often enough, or was given too strong, or because the patient was not put to bed. He had been impressed by the difference between the rectal and the oral temperature in colitis. Frequently when the oral was only 97° the rectal might be 100°. He always tried to take the rectal normal as 98.4°.

Dr. E. P. Poulton said that his experience was like that of most clinicians, that treatments were apt to be very successful when first tried, and afterwards to prove disappointing. He recalled that the first time he gave charcoal he got a dramatic recovery, but no one would regard charcoal as a remedy. In some foreign journals a diet with plenty of roughage had been recommended ; he was once rash enough to try this, but stopped it very soon because it made the patient definitely worse. One medical superintendent of a mental hospital assured him that asylum dysentery no longer existed, simply because of better dietaries and higher vitamin content. He had found that if a good deal of fluid was put into the colon from above—that is, if a duodenal tube were inserted and large amounts of normal saline passed through the intestine perhaps three times a week, washing it out until a clear fluid was obtained down below—better results were forthcoming. He had had one or two cases which had done fairly well after being treated in that way ; then he had a refractory case which did not respond, and here he did a blood transfusion apparently without result, but when the treatment was resumed the results were completely satisfactory. Another treatment he had tried had been to bubble in oxygen slowly through the rectum, and in one patient this had given a remarkable result on first trial, but it did not seem to answer so well afterwards.

Dr. George Graham shared the general gloom with which the treatment of these cases was approached, though he knew some clinicians who were optimistic. The chief trouble arose when patients who had done well suddenly began to relapse, and once they started relapsing there seemed to be no end to the trouble. He did not think the colon should be washed out with anything stronger than saline. Dr. Sears said that he had found antidysenteric serum of value in two cases, but in others it seemed to be absolutely without effect. Dr. Plummer

asked whether Dr. Hare had had any experience of allergy in these cases.

Dr. Dorothy Hare replied that she believed that in some of these cases there was a strong allergic factor, but whether this had much bearing on the colitis she could not say. She thought that transfusion helped in a crisis sometimes, but certainly it was transitory in its effects. She had tried the apple diet often recommended; one case improved remarkably, another got worse, and the amount of roughage or undigested apple passed in the stools showed that it might be disadvantageous. As regards lavage with potassium permanganate, she had gathered that this was used mostly in ambulant cases. Such cases did stand lavage, but it was in the case which was going under with a very acute condition, and which had an extremely sensitive mucous membrane liable to haemorrhage, as well as a great tendency to spasm, that lavage caused extreme pain, and she could not think that in such cases it was a suitable form of treatment.

BONE GRAFTING

At the October meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, with the president, Mr. Seton Pringle, in the chair, Mr. H. F. MacAuley read a paper on the use of bone grafting in modern surgery.

Mr. MacAuley subdivided his procedures into the following groups: (1) for loss of substance, (2) for mechanical blocking of vicious joint action, (3) for plastic purposes, and (4) as an accessory method in treatment. For the treatment of non-regeneration of the tibia following diaphysectomy he proposed a new method—namely, transference of the lower pointed end of the upper fragment of the obliquely osteotomized fibula anteriorly across the interosseous membrane and its implantation into the lower tibial metaphysis. End-results, illustrated by radiograms, were shown of this method, of the posterior ankle-bone-check operation, of the formation of a new acetabular rim in congenital dislocation of the hip, and of the results of bone grafting in cases of tuberculous disease of the hip and spine.

The President commended Mr. MacAuley for bringing out the good and the bad points in the various procedures which he had described. He asked if the operation described for non-regeneration of the tibia could be done at an earlier date after subsidence of the infection than could grafting. Mr. MacAuley's results in tuberculosis of the hip were a strong argument in favour of grafting more of these cases. Mr. F. J. Henry drew attention to one condition which Mr. MacAuley had not mentioned—namely, sacro-iliac disease. He himself had carried out a Verrall grafting on one occasion, and would like to know what method Mr. MacAuley adopted in these cases.

Mr. C. Somerville-Large agreed with Mr. Henry and the president that this was a remarkable series of cases and the results obtained extraordinarily good. In paralytic deformity of the foot he had occasionally performed lumbar ganglionectomy, with a view to improving the circulation. With regard to spinal cases he would like to know something about the fitting of the graft round the kyphosis, which he himself had found most difficult. Dr. J. P. Shanley, referring to spinal grafts, said that Mr. MacAuley had not mentioned Hibbs's operation, which he knew he sometimes carried out.

Mr. MacAuley, in reply, said that the procedure he had described for non-regeneration of the tibia could, he thought, be carried out at an earlier date than could grafting. He believed the Smith-Petersen operation to be the best for sacro-iliac disease, but these cases were very difficult to deal with. In congenital hip dislocation it was difficult to know whether one would sacrifice mobility to stability; besides mobility it was very desirable to obtain correct length. Referring to spinal cases, he said that Hibbs's operation was better than those which he had described, but it took a great deal longer to carry out and was a most difficult operation to do properly. The double-graft operation was a good one, and probably quite as efficient in the long run.

CORRESPONDENCE

The number of letters received for publication is so large that we must ask correspondents to make their points briefly and to regard 600 words as the upper limit of length.

The Maclean Stomach Powder

Sir,—A point of considerable interest to the medical profession is raised by the recent issue of a prospectus by a firm of manufacturing chemists—Macleans Ltd. In this prospectus proprietary rights are claimed in the "Maclean Brand Stomach Powder," a powder made up according to a formula previously published by me in the *British Medical Journal* and the *Lancet*.

The high ethical standard of our profession in this country demands that any useful treatment or discovery likely to benefit humanity should be published so that it may be tested and utilized, if desired, by any member of the profession. Having effected some simplifications in the method of treating certain gastric lesions by means of alkalis, I published, in your columns and in the *Lancet*, the method I had worked out and found most beneficial, giving the formula of a powder which I had found particularly efficacious in the treatment of gastric ulcer. This I did at the request of a number of medical men who had from time to time heard me lecture on the subject.

Subsequently I learned that a powder was being made up by certain chemists with my name attached to it. In 1931 I appealed to the British Medical Association for help in dealing with this matter, and I desire most gratefully to acknowledge the assistance I received from Dr. Alfred Cox and from Dr. Anderson. In response to our representations some firms withdrew my name, but others refused to do so. Unfortunately one of the firms who persisted in selling the powder possesses the same name as my own, and in a recent prospectus in which they offered their shares to the public they describe themselves as having proprietary rights in the "Maclean Brand Stomach Powder," a powder first sold by them as being made up "according to the formula of Professor Hugh MacLean," and subsequently, after strong representations had been made to prevent this abuse of my name, as the "Maclean Brand Stomach Powder."

Since the medical profession in general know that the powder sold by Macleans Ltd. is made up according to the formula published by me, many people have been led to believe that I am in some way connected with this undertaking, or derive, or have derived, financial benefit from the sale of this powder. I would like, therefore, to state emphatically that I have never given any authority to any firm or person to make use of my name, and that I do not derive, and never have derived, any financial or other gain from the sale of this powder. The whole affair has caused me immeasurable annoyance and trouble, aggravated by the fact that I was, when this first occurred, suffering from a serious illness. I understand that I have no obvious legal remedy in the matter other than a possible action for libel which, whatever the issue might be, would certainly involve me in great expense, in serious loss of time, and in very undesirable publicity.

The subject seems to be one of such importance to the medical profession in general that I venture to suggest that the chief bodies representing the profession should combine to give their attention to the general question which is involved and to consider whether it would not be possible to introduce legislation to amend the law of copyright so as to prevent the exploitation by unscrupulous persons of a prescription or method of treat-

ment published in medical journals for the information of the medical profession. It is obvious that the widespread sale of a remedy prescribed for use in certain conditions might do a great deal of harm if used in other conditions for which it was not intended, and where serious injury might be caused.

In my own case the unfortunate accident of the existence of a firm of manufacturing chemists bearing the same name as my own but entirely unconnected with me has apparently enabled them to attach the name "Maclean" to my powder and to claim some special virtue in the art of dispensing it. If there is no legal means of preventing this sort of practice, it is obvious that some amendment of the law is urgently required to prevent gross injustice to members of the medical profession.—I am, etc.,

London, Oct. 3rd. HUGH MACLEAN.

Monkey Malaria in G.P.I.

SIR,—The inquiry into the use of *Plasmodium knowlesi* in malaria therapy at the Horton Mental Hospital, which is mentioned in your leading article (October 12th, p. 672), was begun in consultation with Colonel S. P. James, F.R.S., in April, 1934, and is being continued in collaboration with Professor Ciuca and his colleagues at mental hospitals in Bucarest and Jassy, to which we transmitted blood from an infected *Macacus rhesus* in May this year.

The work is yielding valuable results in adding to knowledge of malaria, but the information obtained on the use of the parasite for the malaria treatment of general paralysis does not support the view that it would be advantageous and practicable to employ it on a considerable scale as a substitute for *P. vivax*. The chief disadvantage of *P. knowlesi* for this purpose is that not many patients suffering from general paralysis are sufficiently susceptible to it to react with a therapeutically effective malarial attack. According to the records at Horton and in Rumania—seventy-six cases in all—the intramuscular or intravenous inoculation of blood from highly parasitized *Macacus rhesus* failed to produce fever and other clinical symptoms in 56 per cent. of patients suffering from general paralysis who had never previously had any form of malaria, and in all except one of sixteen patients who had a previous history of this disease. Moreover, in 25 per cent. of the successful infections the resulting attacks of malaria were of an abortive character, with few parasites in the blood and spontaneous recovery in less than a week. In the remaining cases the infection developed actively, as in the examples described by Drs. van Rooyen and Pile (*Journal*, October 12th, p. 662), but there were only a few in which the temperature during the febrile paroxysms exceeded 104.4° F., which is considered to be the lowest temperature likely to be therapeutically effective in general paralysis. Drs. van Rooyen and Pile seem to have had the same experience. At Horton, on account of the mildness of the fever and the tendency to spontaneous recovery, it was considered necessary to give nearly half the patients who had been treated with *P. knowlesi* a supplementary course of malaria with *P. vivax* or *P. malariae*.

As regards practicability, the chief disadvantages are that *P. knowlesi* quickly loses its pathogenicity for patients suffering from general paralysis when it is passaged from person to person, and that as yet it has not been successfully cultivated in mosquitos. For these reasons the routine employment of the parasite would necessitate the continuous provision of a large supply of infected *Macacus rhesus*, which would be more costly than the existing arrangements for the continuous provision of mosquitos infected with *P. vivax*. As a therapeutic agent, the use of *P. knowlesi* is purely in the experimental stage, and from experience in England the employment of *P. vivax* can be regarded as both safe and efficient.

At Horton the employment of a strain of quartan malaria has been of much value in being available for those cases which may be immune to benign tertian; moreover, the fever-free intervals in quartan render it useful for a more debilitated type of patient who cannot withstand a quotidian fever.—I am, etc.,

Horton Mental Hospital, Epsom, Oct. 12th. W. D. NICOL.

Treatment of Cancer by Proteolytic Enzymes

SIR,—In the *Journal of the Canadian Medical Association* for October, 1935 (p. 364), an article entitled "The Study and Treatment of Cancer by Proteolytic Enzymes," by Dr. H. C. Connell, appears. In this article reference is made to the fact that the Imperial Cancer Research Fund had been asked by Dr. Connell to investigate experimentally his claim to have discovered a method of killing cancer cells *in vivo*—potentially a cure for cancer. We have prepared from mouse tumours, in accordance with directions received, the solutions which Dr. Connell calls "ensols," and have tested these "ensols" on the appropriate tumours of mice. In no case has the growth of a tumour been checked or affected in any way.—I am, etc.,

8-11, Queen Square, W.C.1., Oct. 14th. W. E. GYE.

Views on the Cancer Problem

SIR,—Professor Blair-Bell's abusive letter which appeared in the *Journal* of September 21st requires but brief reply. The reference made to the letters in the *Lancet* (1925, ii, 1142 and 1196), under the heading "The Trophoblastic Hypothesis of Cancer," was unfortunate. May I quote the concluding paragraph of Dr. J. A. Murray's letter (p. 1142)?

> "The patronizing attitude towards other workers which pervades Dr. Bell's whole lecture comes ill from one who, it is charitable to assume, is himself ignorant of the recent literature of the subject."

At a meeting of the scientific staff of the Liverpool Cancer Research Committee (not the L.M.R.O., as stated), I pointed out that the reply to Dr. Murray's letter as drafted and read by Professor Blair-Bell contained incorrect statements of Beard's views on the nature of the trophoblast as expressed in his numerous writings. In the amended letter, which appears on page 1196 of the *Lancet* (1925, ii), similar misstatements occur.

The letter in your correspondence columns of September 21st exhibits the same patronizing attitude towards the work and views of other investigators (to which Dr. Murray referred) and a similar lack of knowledge of the literature of the period 1893-1933, which includes papers, too numerous to mention here, by many well-known British, American, and Continental embryologists, dealing with the early developmental stages of the fertilized ovum in many mammalian species prior to the appearance of any embryo.—I am, etc.,

H. E. ANNETT,
Turner Research Laboratory,
University of Liverpool.

October 10th.

Injuries to the Semilunar Cartilages

SIR,—It is very interesting to read in the *Journal* of October 12th the comments of Dr. J. K. Surls on my paper "Injuries to the Semilunar Cartilages." Both he and Mr. Timbrell Fisher speak with authority. Their differences from me are, I think, rather apparent than real. Both of them disagree with the statement that in injuries of the posterior extremity of the cartilage "lock-

ing" is absent. I feel pretty certain of this point if the injury is really posterior and we understand by "locking" inability to extend the knee completely. But if the lesion comes forward it will cause the typical "locking," in which case, however, the injury will be detectable from the front. I might have put the statement in another way, by saying that if the anterior part of the cartilage is intact locking does not occur. It is really a question of how posterior the damage is.

Dr. Surls says he has often been able to excise the whole cartilage from the front. Of course it is possible when it is sufficiently loose, as every surgeon must know. What I confess myself unable to do is to remove an intact cartilage from an anterior incision. If he would read the text of the paper again he will realize that what I do so strongly deprecate is the attempt to remove the cartilage when, on opening the joint, the cartilage appears to be intact. If the looseness does not extend sufficiently far forwards the manœuvre will cause undue damage to the joint. I believe I have his support in this view.

As I indicated, the necessity for the removal of the whole of the cartilage in every case is a debatable point. There always is some uncertainty about the condition of the periphery, and Mr. Fisher's experience in operating a second time on many knees where the partial removal has been done must carry great weight. I am not influenced by the feeling that removal of the whole cartilage weakens the joint, because I know this not to be true. I do not, however, believe with him that the internal cartilage moves bodily towards the interior of the joint in every case at the primary injury. It may, and very likely does, move only in association with the tibia as it rotates on the femur, without becoming detached at its periphery. Certainly at operation in many cases of bucket-handle deformity, the peripheral segment is firmly fixed, and certainly very many patients have been cured by removal of the bucket handle alone. This simple procedure is such a minor intervention that I should be loath to abandon it altogether. However, it must be admitted that sometimes either such peripheral mobility is present or the patient with his peripheral remnant may suffer another injury, as I pointed out in my paper. This, indeed, is the weak point in such a policy. Whether it is a great defect or not depends upon the frequency of such happenings. I believe it not to be great because, unlike Mr. Fisher, I have not detected such constant hypermobility of the peripheral fragment as he has done.

Dr. Surls objects to my statement that lateral displacement of the patella is not justifiable for exploration of the knee-joint in these cases. I did not give reasons for this attitude because I thought other surgeons must have come to the same conclusion. This procedure necessitates a long incision, and when the patella has been displaced to the lateral side access for removal of the internal semilunar cartilage is, in my experience, not improved in any way, whilst the removal of the external cartilage is not easy either. When in doubt as to which cartilage is at fault a much less disturbing exploratory operation is to open the inner side of the joint both in front and behind (a small incision in the synovial membrane will suffice), and then, if no injury of the internal cartilage be found, to make another opening on the outer side of the patella.

Like Mr. Fisher I have often been in the dilemma, after the first accident, of having to choose between operation, with quick return to game-playing, and conservative treatment, with a fair prospect of being forced to operate when much of the season has gone. Every surgeon must settle this problem for himself, and the solution will not be the same for every patient. The general policy which I myself pursue I indicated in my paper. The views expressed in that paper are the conclusions come to after some considerable experience as a general surgeon. They are always open to revision as fresh facts come to light, and it is for this reason that I particularly welcome the kindly criticism of both Dr. Surls and Mr. Timbrell Fisher.—I am, etc.,

CHARLES A. PANNETT.

St. Mary's Hospital, W.2, Oct. 14th.

SIR,—Dr. J. K. Surls's letter offers somewhat severe criticism of Professor Pannett's statement that locking is absent in posterior horn lesions of the semilunar cartilages. He suggests that this view is unusual, that it has never before been reported in the literature, and that it is quite unorthodox. Unless Dr. Surls's comments are amplified they do an injustice to Professor Pannett, and they may obscure a valuable feature of his article where attention is again drawn to a clinical syndrome far too rarely recognized.

It is surely obvious that the presence or absence of locking depends entirely on the size of the fragment which is separated. A peripheral tear may loosen the greater part, or even the whole, of the posterior third of the cartilage, and when this large thick fragment slips into the joint locking results. Such a case offers no more difficulty in diagnosis than does the ordinary complete bucket-handle tear. But Professor Pannett was describing an entirely different clinical entity, in which diagnosis is difficult because there is never locking of the joint—a clinical entity which has been recorded in the literature, and which probably represents the commonest posterior horn lesion of the cartilage. In this case there is a tear, not of the thick peripheral margin, but of the thin free margin of the posterior horn, with the separation of a thin pedunculated fragment. When the fragment is displaced there is a sharp twinge of pain, a sensation of weakness, or a feeling that the joint is about to lock or to give way, but the fragment is neither thick enough nor mobile enough to cause actual locking. A similar pathology and a similar clinical picture is seen in most cases of incomplete removal of the cartilage where a posterior horn tag has been allowed to remain. There is probably no knee-joint injury which is more frequently overlooked. With a characteristically vague history, the only conclusive physical sign is the typical click elicited by Mr. T. P. McMurray's very valuable rotation manipulation of the fully flexed knee—a click which is quite different from the external cartilage thud accompanying active extension of the joint.

In view of Professor Pannett's recognition of this lesion it seems unfortunate that he permits himself to remove only the displaced central half of a cartilage with a bucket-handle tear, because the two lesions are quite often associated, and the small pedunculated fragment may arise from the peripheral half and not be visible until the peripheral half has been actually removed. When a torn cartilage has been subject to recurrent displacement secondary injuries have frequently been sustained, and it is no uncommon thing to find two or three different types of tear in one and the same cartilage. Any of these lesions may be invisible until the whole cartilage has been removed.—I am, etc.,

Liverpool, Oct. 14th. R. WATSON JONES.

Radium Treatment of Naevi

SIR,—I thank Dr. Herbert Brown (*Journal*, October 12th, p. 702) for his kind interest in my paper on the above subject. The lecture, as he surmises, was given to general practitioners, and exact details of dosage would, of course, have been useless to them: one could only indicate the general principles.

This dosage question is a very long and complicated matter on account of the number of different factors involved. One cannot say that the patient should receive so much radiation per square centimetre, because with large naevi the amount per square centimetre is relatively less than with small naevi, owing to oblique radiations from the tubes in the outer parts of the naevus increasing the dose in the inner part. Then the age is a very important factor. In a child under 1 year one can reckon to give about 55 per cent. of what one would give to an adult 20 years old in order to get the same amount of reaction, and one has not yet found a fairly exact method of working out the dose at intermediate ages. The next thing to consider is the exact size, shape, and distribution of the radium apparatus and its filtration and distance from the skin. One gets used to working with particular apparatus and knows its exact characteristics, its field of action, and the time required to produce a certain effect. I will give one instance. Consider a small naevus that can be satisfactorily covered by the radiation from my 53 mg. tube. This tube has an active length of 15 mm., an active diameter of 5 mm., and a filter of 0.5 mm. of platinum and 1 mm. of rubber; the erythema dose of this in an adult of 20 years is sixty-three minutes. The dose I employ for a baby of 6 months is thirty-two minutes, if one area only is treated, thirty-one minutes each if two areas fairly close together (say, 4 or 5 mm. apart), and thirty minutes if three areas similarly spaced. Likewise, full details have to be given for every apparatus one uses.

I am sure Dr. Herbert Brown is working on the right sort of lines, as he is using an adequate filtration, and his four layers of lint will give him a more even irradiation in a deep naevus—it is not necessary in a superficial one. As the action of the radium goes on such a long time he might after two, or perhaps three, treatments give a long interval to see the result, but if he keeps the dose below a slight erythema he must be careful to go very close to this dose or it will not be sufficient in some cases. As long as the dose is not large enough to cause subsequent telangiectases, and is yet large enough to get rid of the naevus, it is satisfactory. What I particularly wanted to stress in my paper was the great necessity for early treatment, for adequate filtration, and for sufficient treatment, as well as the usefulness of help from the plastic surgeon in bad cases.—I am, etc.,

London, W.1, Oct. 14th. N. S. Finzi.

Treatment of Bell's Palsy

Sir,—It was disappointing to find so authoritative a teacher as Dr. Wilfred Harris (*Journal*, September 28th, p. 592) advocating anastomosis of the facial nerve with the hypoglossal in those cases of Bell's palsy which do not recover facial power after six months' conservative treatment. This procedure, although restoring tone and some voluntary power to the facial muscles, gives no emotional expression, and is apt to be accompanied by distressing associated movements.

The experimental work of Sir Charles Ballance and Dr. Arthur Duel (*Journal*, December 8th, 1934, p. 1027) led first to Duel's operative work on traumatic facial paralysis, and subsequently to his successful treatment of unrelieved Bell's palsy by decompression of the facial nerve in the Fallopian canal. It would be useful for further investigations if all patients with Bell's palsy could have the electrical reactions of the facial muscles tested after the acute pain has subsided, in order to confirm Duel's contention that muscles which responded to faradism would recover completely, while those that did not respond would not recover, owing to the severity of the acute neuritis and the degree of swelling of the sheath which compresses the axons in the narrow bony tube. Duel maintains that these patients whose facial muscles fail to react to faradism will always be left with a residual paralysis, and should therefore have the facial nerve decompressed in the Fallopian canal early in the course of the disease. Be that as it may, there will be more complete agreement for the advocacy of operative treatment for those cases where no improvement has been noted at the end of six months, and the procedure most likely to restore to normal the function of the facial muscles is uncovering of the facial nerve in the temporal bone.

Sir Charles Ballance and Dr. Duel insist, however, that this operation is both tedious and difficult, and should be undertaken only by those who, in addition to being experienced aural surgeons, have served a special apprenticeship in the dissecting and post-mortem room in order to acquire familiarity with every millimetre of the Fallopian canal.—I am, etc.,

London, W.1, Oct. 14th. D. J. Collier.

Cardiac Resuscitation

Sir,—Dr. W. B. Primrose's article on cardiac resuscitation in your issue of September 21st affords a valuable reminder of the importance of cardiac massage being undertaken at the earliest possible moment following cardiac syncope, in order to preserve the functions of the central nervous system. He rightly describes cardiac massage as setting up an artificial circulation, but he does not accentuate the obvious necessity of the circulating blood being oxygenated, and, indeed, he makes the unfortunate statement that artificial respiration is of secondary importance.

Dr. Primrose's paper would have possessed greater value had he stressed the paramount importance of commencing artificial respiration at the same time as the artificial circulation. There is little doubt that failures in the performance of cardiac massage are often due to neglect of this simple principle. I have made extended reference to artificial respiration in my paper on cardiac massage in the *Proceedings of the Royal Society of Medicine* (1921, vol. xiv, Sec. Surgery).—I am, etc.,

Marlow, Bucks, Oct. 11th. A. Goodman Levy.

Post-anaesthetic Conjunctivitis

Sir,—In reviewing a recent book on anaesthesia I discovered that no mention was made of the above condition. My curiosity aroused, I searched through five standard works on anaesthesia, and in only one did I find any reference to the subject. In *Recent Advances in Anaesthesia and Analgesia* the author says, in speaking of anaesthetic sequelae, "Some of these are preventable, such as conjunctivitis. . . ." Now this is the key to the riddle, that such a complication *should not* occur, and that when it does it is a reproach to the anaesthetist. Let us examine this belief.

Various causes are assigned to post-anaesthetic conjunctivitis. The surgeon may think that it is due to the careless anaesthetist allowing liquid or gaseous anaesthetic to impinge on the surface of the eye. This, though a possible cause, is fortunately a rare one. The condition is more likely to be caused by the over-cautious anaesthetist who will persist in gauging his anaesthetic by

testing the corneal reflex and thereby destroying the corneal epithelium. There is a third cause, in which the anaesthetic is merely a contributory factor. It is this. We know that, normally, the eye is protected from infection by the secretion of tears. Under general anaesthesia there is not only diminished secretion but separation of the lids. Should this occur in a patient suffering from chronic dacryocystitis it is inevitable that the conjunctiva will be reinfected from the chronic focus, and that an acute conjunctivitis will result. Obviously, under all circumstances, the eye should be protected from undue drying.

The object of this letter is not to labour points already fully appreciated by professional anaesthetists, but to suggest that the prime function of works on anaesthesia is the instruction of students, and not the provision of books of reference for competent anaesthetists. This being so, it is to be deprecated that there should be a conspiracy of silence in regard to a preventable condition involving so much post-anaesthetic suffering.—I am, etc.,

Birmingham, Oct. 16th. L. T. Clarke.

Dental Deformities

Sir,—While not denying that thumb sucking or any persistent pressure may produce dental deformities, I desire to say that the cases illustrated in the *British Medical Journal* of October 12th (p. 670) appear to me much more likely to be caused by congenital syphilis. If my view is correct rhagades will be found if looked for. The angles of the mouth will show "vaccination" scars, and the edges of the lips will show areas where the red margin has been dermised into white skin.—I am, etc.,

Dublin, Oct. 14th. Robert H. Woods.

Radiological Grouping of Arthritis

Sir,—In your review of the publication entitled *Radiological Atlas of Chronic Rheumatic Arthritis* (*The Hand*) it is stated that climacteric arthritis cannot be placed satisfactorily in any of the four groups mentioned.

I should like to point out that this is rather the fault of the clinical differentiation than the method of radiological grouping. By this I mean that of two cases clinically diagnosed as climacteric arthritis one will show typical radiographic changes of rheumatoid arthritis and the other osteophytic formation and loss of cartilage associated with osteo-arthritis. I am therefore led to conclude that there are no changes to be detected radiographically that can be said to be characteristic of climacteric arthritis.—I am, etc.,

London, W.1, Oct. 14th. S. Gilbert Scott.

Circumcision

Sir,—While avoiding the pros and cons of circumcision in male infants and children, I should like to express my entire agreement with the view taken by Dr. C. E. Gautier-Smith (*Journal*, October 5th, p. 692)—that manipulative surgery should find no place in the treatment of phimosis and allied conditions.

The operation of circumcision, anaesthetic apart, is attended with very few risks. Haemorrhage should be very rare if the fraenal vessels are first tied before any incision is made and a simple tourniquet is applied at the root of the organ (inch jaconet folded in three and held firmly in Spencer Wells forceps); a clean cut with scalpel is made, taking care not to remove too much foreskin—that is, flaying the glans penis. Redundant mucous membrane having been cut away, two lateral and one dorsal catgut sutures (Halstead) are inserted; a dressing applied, such as gauze impregnated with tinct. benz. co., does quite well. It is understood that the tourniquet is first released to make sure there is no oozing before applying the gauze. Primary healing should be the rule, as soiling of the wound is prevented.

Some of my colleagues have informed me that where necessary they sometimes do a circumcision on a newborn infant while awaiting the arrival of the placenta, with gratifying results. Of this line of treatment I myself have no experience. It has this merit, however, that there is no anaesthetic risk, and it is done at a time when an infant can best tolerate trauma; but personally I would consider it a somewhat hurried proceeding.—I am, etc.,

S. A. Montgomery, M.B., B.Ch.

Bournemouth, Oct. 14th.

Sir,—With regard to your correspondence on circumcision the following case may be of interest.

My son, now aged 6, was born with a long, tight foreskin. As I was against circumcision at the time, he was left uncircumcised. When he was 6 months old I noticed that he continually handled his penis. A colleague found adhesions, which he freed, and since then the foreskin has been pushed back every night at bath time and the parts thoroughly washed. There has been no recurrence of the handling on his part except on one or two occasions when the nightly washing has been omitted and there has been some slight local inflammation. The boy now does the washing himself as a matter of routine, which falls in place with the cleaning of ears, teeth, etc.

The points I wish to stress are: (*a*) it is really difficult to keep the parts clean in the uncircumcised, and (*b*) regular pushing back of the foreskin and washing does not always conduce to masturbation, whereas dirty, itching parts do. I hesitate to have the boy circumcised now because I think it quite likely that a psychological trauma may result from the operation at this age. I know of at least one case, where a boy of 4 years, one of twins, was circumcised, in which the operation undoubtedly was a great shock, and this may have far-reaching results. With regard to what Dr. H. M. Hanschell says of the preference of the copulating woman for the circumcised male: this may be due to the fact that the glans is less sensitive after circumcision in infancy and that therefore coitus can be prolonged. If this is the explanation it is an argument in favour of circumcision which should not be overlooked. Ejaculatio praecox with its concomitant unhappiness to both partners is common enough to call for investigation.—I am, etc.,

Suffolk, October 5th. W. M. C.

Sir,—My own personal experience leads me to echo Dr. D. W. Walker's advice in your issue of October 12th, although my experience is admittedly trivial in comparison.

My elder brother and myself both required this attention at school age; two of my friends required it when medical students; recently an official in my town hall, with two grown-up children, had to absent himself for circumcision—a very uncomfortable kind of operation for an adult apart from the inevitable ribaldry as to change of faith and so on which ensues among the easily amused. I was foolish enough myself to listen to the advice of one of our maternity and child welfare staff who stretched the prepuce of my elder son, with the result that he required at school age the operation he should have had as an infant.

It is too bad that boys should suffer discomfort or be subjected to an operation at school age or later which should be carried out in infancy.—I am, etc.,

October 14th. M.D., D.P.H.

SIR,—I suggest that all male children should be circumcised. This is "against nature," but that is exactly the reason why it should be done. Nature intends that the adolescent male shall copulate as often and as promiscuously as possible, and to that end covers the sensitive glans so that it shall be ever ready to receive stimuli. Civilization, on the contrary, requires chastity, and the glans of the circumcised rapidly assumes a leathery texture less sensitive than skin. Thus the adolescent has his attention drawn to his penis much less often. I am convinced that masturbation is much less common in the circumcised. With these considerations in view it does not seem apt to argue that "God knows best how to make little boys."—I am, etc.,

Hendon, N.W., Oct. 9th. R. W. COCKSHUT.

Cerebral Haemorrhage and Thrombosis

SIR,—I am much obliged to Dr. R. T. Cooke (*Journal*, October 12th, p. 702) for pointing out the slip which I made in regard to the way the tongue was protruded; it was, of course, pushed over to the paralysed side. My point, however, was that here we had a case apparently of cerebral embolism in which, after a few days of almost complete hemiplegia, the symptoms disappeared with dramatic suddenness. That it was due to embolism and not due to haemorrhage was indicated by the fact that the blood pressure was low and that there was not an undue amount present of fibrotic or calcareous changes in the arteries. I remember seeing a similar case several years ago in a child of approximately 14 months, where, after an attack of convulsions, hemiplegic symptoms supervened. These cleared up twenty-four hours later, after the administration of a dose of calomel, some castor oil, and a hot bath.—I am, etc.,

Ramsey, Isle of Man, Oct. 12th. E. G. FENTON.

Registration of Opticians

SIR,—What exactly has the ophthalmic surgeon to fear from the sight-testing optician? The suggestions made by Mr. Tibbles and "G.P. Oculist" would only result in division between ophthalmic surgeons and medical refractionists. We are agreed that the claims of the optician to refract cannot be disputed except upon the ground that his examination is incomplete, owing to inadequate knowledge of the eye as a living structure and a part of the body liable to show early signs of serious disease. Every private refraction done by a surgeon carries an implicit guarantee that the eyes are structurally sound. In hospital practice the surgeons' time is saved by delegated responsibility and repeated examinations. This wastes the time of the patient. The National Eye Service attempts to meet this difficulty by providing an intermediate service. The dispensing optician admits our claims, and his duty is to see that his materials, workmanship, and fitting are better than those of his sight-testing colleague. This symbiosis will not work upon a price-cutting basis, and the suggestions made by "G.P. Oculist" would reduce ophthalmic practice to a business of "working out" refractions at so much per head. It would not profit the undergraduate to learn detailed refraction work, but many ophthalmic house-surgeons master it rapidly in hospitals where they have to do this work. Such appointments could be increased.

The refraction is only an incident in the routine examination of the eyes. A presbyopic citizen can never be prevented from buying a magnifying glass any more than he can be prevented from consulting a bone-setter about his tennis-elbow. He cannot be compelled to go to a medical clinic or to a "fully qualified" and "State registered" sight-testing "ophthalmic optician." If his society gives him a grant based upon an inferior scheme to that of his friends the remedy lies in his own hands, and our duty is to make certain that the National Eye Service is a better scheme. It would not improve on the lines suggested by your correspondents.—I am, etc.,

Glasgow, Oct. 7th. W. J. B. RIDDELL.

SIR,—The registration of opticians is a minor detail compared with the further lowering of fees suggested by "G.P. Oculist" in the *Journal* of October 5th (p. 644), which he seems to think will result in more work. Years ago, when I was on the Ophthalmic Benefit Committee, I warned members then that lowering the fee, from the then guinea standard paid by the approved societies, would not help, because there is only a limited amount of ophthalmic work to be done for each individual during his lifetime, and I have yet to see that cheap work brings more, as it does not even bring more cheap work. More medical men should take up refraction work, and as a large number of people visit sight-testing opticians first there is no sense in quarrelling with what is an established fact, so that it is better to co-operate with them. They, at least, do not expect a doctor to see a patient for the absurd fee that our own profession has cut it down to in the last few years, as a fee once reduced can never be raised again. Since a third of the population come under the Insurance Act this lowering of fees has been a very serious thing for every eye surgeon, and if they wish to extinguish themselves totally they had better lower them still further. Many societies run their own clinics, and one secretary of the biggest approved society told me they had no intention of paying a guinea for these insured people when the sight-testing optician will do it for five shillings. As it is a question of money and not sentiment with them the sooner the ophthalmic surgeons face these facts the better, instead of our trying to mix sentiment and business. The public will, however, always pay for a thing well done, so it is better for us to make the best arrangements we can as regards remuneration, either through existing channels or by private arrangements between patient and doctor.—I am, etc.,

London, W.1, Oct. 8th. SYDNEY TIBBLES.

Pay Beds for Middle-class Patients

SIR,—In view of the approaching financial reconstruction of the London Clinic and Nursing Home, it is not untimely to offer some observations on the future of this important undertaking.

The originators of the scheme at its inception had in mind the creation of an institution which would give middle-class patients, for a moderate fee, a standard of comfort and privacy similar to that obtainable at a good nursing home, combined with the modern facilities for diagnosis and treatment such as are available to poor patients at the large voluntary hospitals. Undoubtedly the equipment and standards of comfort obtainable at the London Clinic fulfil these desiderata, but unfortunately the fees are *not* moderate and, generally speaking, are beyond the reach of the class of patient for whom it was originally intended.

In spite of the increasing number of paying beds in connexion with the voluntary hospitals, there is still a very urgent need for more beds for patients of moderate means. Owing to the high rents in the West End of London, and for various other reasons, it would appear to be impossible to provide such pay beds at moderate charges on a purely commercial basis. The solution of the difficulty would appear to be the conversion of the clinic into an institution of the voluntary hospital type, supported, or partly supported, by voluntary contributions. By the help of such philanthropic contributions it would become possible to reduce the charges to, say, £5 5s. per week, exclusive of medical attendance, a figure which would make the clinic available to a class of patient for whom there is at present very inadequate provision. I have mentioned this suggestion to a few colleagues and other interested parties, and have received an offer of a substantial sum from a wealthy individual—who desires to remain anonymous—for the furtherance of this object.

There is, of course, a considerable and growing demand for accommodation such as is provided by the London Clinic on the part of patients who can afford to pay its present scale of charges, and it may be considered preferable to retain, if possible, the present non-benevolent character of the undertaking. Should it be found increasingly difficult, however, to run the clinic on ordinary business lines, some scheme for its conversion such as I have roughly indicated should be carefully considered by the profession.—I am, etc.,

London, W.1, Oct. 8th. J. Landman, M.D.

Status of the Ship Surgeon

Sir,—May I congratulate Dr. J. R. Hamerton (*Journal*, September 14th, p. 521) upon his letter about ship surgeons. I can from personal experience agree with everything he says, and think it quite time that the B.M.A. took up the matter with a view to the improvement of the conditions.

There are also some other matters which require consideration—for example, the accommodation set apart in ships as surgeries, hospitals, and living quarters; all of these are very often extremely inadequate. I am acquainted with a passenger vessel now plying to the Tropics where the hospital is a deckhouse in the afterpart of the ship, exposed to the full rays of the tropical sun, is next to the laundry, and the deck immediately outside it is used for the accommodation of Kroo boys, who eat, sleep, and jabber there by day and by night. In the same ship neither the surgeon's cabin nor the surgery has any daylight; they are situated over the engine room, and frequently in the Tropics have a temperature of from 95° to 100° F.

I have yet to see a ship in which the barber's shop is not in every way—as regards size, position, lighting, water supply, and electrical facilities—superior to the doctor's surgery and consulting room. The surgeon's cabin is nearly always inferior in position, size, and appointments to that of the chief officer, chief engineer, or chief steward. As Dr. Hamerton says, the shipping companies regard the surgeon as a necessary evil; the medical superintendents, even where such exist, are too ill paid to bring about reforms; and the appointment of surgeons is too frequently left in the hands of some underling in the office.

With regard to equipment, even the meagre and out-of-date supply of drugs, dressings, etc., as laid down by the Board of Trade is often not adhered to or checked over. In one ship it took me three voyages to obtain a McIntyre splint, and I was very conscious of my unpopularity in the office owing to my importunity in this and similar matters.—I am, etc.,

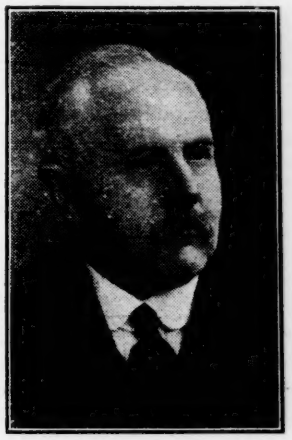
October 10th. Late Ship Surgeon.

Obituary

SIR F. CONWAY DWYER, M.D., F.R.C.S.I.

We regret to announce the death on October 10th, in a private nursing home in Dublin, of Sir Frederick Conway Dwyer, ex-president of the Royal College of Surgeons in Ireland.

Born in Dublin in 1860, he was the son of Michael F. Dwyer, Registrar of Deeds in Dublin. He came of a very old Co. Tipperary family, many of whom occupied outstanding positions in Great Britain and Ireland. He was educated at Trinity College, Dublin, where he graduated M.D. in 1884, taking his F.R.C.S.I. fourteen years later. As a student he had a very distinguished career, and was both senior moderator in experimental science and medical scholar. After serving as resident medical officer at the Mater Hospital in Dublin, and later acting as a demonstrator of anatomy at the College of Surgeons, he received his first appointment as surgeon to Jervis Street Hospital. Later he acted as surgeon at the Meath Hospital, subsequently (in 1907) becoming surgeon to the Richmond Hospital, where he remained for fifteen years—until his retirement. Other posts which he held were that of consulting surgeon to Mercer's Hospital and chairman of the House of Industry Hospitals. He was at one time president and professor of surgery at the Royal College of Surgeons in Ireland, while evidence of his versatility is to be found in his appointment as visiting inspector in lunacy and inspector of anatomy for Ireland. During the war Dwyer held the rank of lieutenant-colonel in the R.A.M.C., and was operating surgeon to the George V Military Hospital in Dublin, receiving the honour of knighthood in 1921. He was regarded by his colleagues as a most successful operator, especially in the field of abdominal surgery. He was a widely read man, and was looked upon as a great authority on Napoleonic literature.



Sir Conway Dwyer's life was a full one, and the numerous appointments he held left him little time for writing on professional topics.

[The photograph reproduced is by Lafayette, Dublin.]

THE LATE MR. E. MUIRHEAD LITTLE

Sir Ernest Graham-Little writes:

I deeply regret that I was absent from London when my namesake and very dear friend, Ernest Muirhead Little, died. Our friendship began more than forty years ago at St. George's Hospital, where we were both trained, and although he was some fifteen years my senior his affection for his school brought us into early contact at meetings of the School Medical Society and elsewhere. So much confusion resulted from our possession of Christian and surnames in common that we were forced to emphasize our second names, and he was always "Muirhead" to me and I "Graham" to him.

Another very frequent occasion for meeting him was at the sessions of the Casual Club, where he was seen at his best. This club holds weekly meetings throughout the autumn and winter months, when papers are read and discussed "casually"; indeed, it was a point of honour that no one but the introducer of the subject

should read it up beforehand. In the late 'nineties and early years of this century it had a remarkable concentration of brilliant medical members, amongst whom may be mentioned Charles Mercier, Dawson Williams, J. A. Coutts, Bryan Donkin, Arthur Cottell, Selfe Bennett, Arnold Chaplin, A. M. Gossage, and others. Muirhead Little was one of the most active of them: he rarely missed a meeting, and had the unique compliment paid to him of being twice elected president, in 1901 and again in 1929. The kindest of men, he could not suffer fools gladly, and many will remember an incident at the Casual Club some twenty years ago when a misguided member proceeded to so far abuse the traditions of the Club for casualness as to introduce a *blackboard* to illustrate his paper! Muirhead, sitting next to me, gasped, "I can't stand this!" and to the consternation of all he rose in his massive stature and stalked out of the room. The last time I saw him was at a meeting of the Casual Club on April 11th of this year, when I read a paper on "The Doctor, the Quack, and the Public," and Muirhead Little, in spite of the handicap of advanced Parkinsonian disease from which he was suffering, made a point of coming to the meeting and of speaking on the paper—the last meeting he ever attended.

He was a delightful companion, especially on long country walks, in which we both took pleasure. His immense range of reading and his singularly retentive memory provided an inexhaustible fund of conversation and entertainment. I think it can be said with complete truth that all who knew him loved him, and those who knew him best loved him best.

Dr. Walter Harington Fisher, O.B.E., who died at Cleethorpes, Grimsby, on September 28th, at the age of 59, was one of the most popular figures in North Lincolnshire, especially in medical, Territorial, Freemasonry, and sporting circles. He was educated at Cambridge and the London Hospital, where he qualified M.R.C.S., L.R.C.P. in 1902; he graduated M.B., B.Ch.Camb. in 1903, and proceeded M.D. seven years later. One of his earliest interests was the Territorial Army, and during the war he saw much service abroad, including Egypt. He was awarded the O.B.E. and the T.D. and attained the rank of lieutenant-colonel. After the war he continued to serve for some years as R.M.O. to the 5th Battalion of the Lincolnshire Regiment, the headquarters of which are in Grimsby. For many years he had been an examiner for the St. John Ambulance Association; he was eventually appointed an assistant commissioner of the Brigade and received the Order of St. John of Jerusalem. He practised in Cleethorpes, and was medical officer to the Post Office and to various assurance companies. He joined the British Medical Association in 1904. He took an active part in local Freemasonry, and had been W.M. of his Lodge and also a P.M.W.S. of the Tower Chapter, Grimsby. He was a great sportsman who keenly enjoyed a joke, a conscientious and efficient medical practitioner, and a loyal and generous friend and colleague.

With the passing of Dr. William Carr Humphreys, Swansea has lost its oldest and perhaps its most widely esteemed medical man. Born near Newtown, Montgomeryshire, in 1857, he went to Swansea Hospital as a house-surgeon in 1881, immediately after qualifying as M.R.C.S. and L.S.A., and made a reputation for himself there as a dexterous surgeon. After about three years he relinquished this post and set up in general practice in the town, in which he continued for over fifty years. During this long period as a general practitioner he became well known for his kindness and gentleness in the performance of his daily work, for which he will be remembered in hundreds of homes in Swansea. He was also held in high regard for his generosity in the free treatment of his poorer patients, and was a man who made, without ostentation, numerous gifts to local churches and other deserving causes. Dr. Humphreys was also recognized as being a friend in need to young practitioners settling in the town, to whom he always extended not only his sympathy but his practical support. Of late years his health gradually failed, but until a few weeks before his death he could be seen about in his horse-drawn brougham, his continued and rigid attachment to which, in preference to more modern methods of locomotion, was a cause of frequent remark and occasional diversion. The end was accelerated by a fall outside his house causing a fractured leg. Thus passes another of the old style of general practitioner, rarely seen nowadays. Dr. Humphreys had been in continuous membership of the British Medical Association since 1882.

Dr. Edward Pigott Minett, late Government bacteriologist in the Colonial Medical Service, died on October 5th at Uplyme, Devon. He received his medical education at Guy's Hospital, obtaining the diplomas M.R.C.S., L.R.C.P., and the D.P.H.Camb. in 1907; he graduated M.D.Brux. in the same year, and took the D.T.M. & H. in 1909. After holding clinical appointments at Guy's Hospital, he specialized in bacteriology and public health, and undertook work in London, Hertfordshire, and Essex. He went out to British Guiana in 1910 as assistant Government bacteriologist, and from then until 1922 held successively the posts of Government bacteriologist and medical officer of health. In the first few months he received the thanks of the Secretary of State for the Colonies for identifying "mal de caderas," and for a special investigation of leprosy, which was subsequently published as a white paper. He was honorary secretary and representative for British Guiana at the West Indian Medical Conference in 1922, and honorary secretary, Fellow, and examiner to the West Indian Branch of the Royal Sanitary Institute. The year 1922 saw his transference to Hong-Kong, where he was Government bacteriologist and officer in charge of the bacteriological institute, and lecturer and examiner in hygiene and medical jurisprudence to the university. He was also medical officer of the Hong-Kong Volunteer Defence Corps, and resided in the island until 1928. During the war Dr. Minett served in France, Salonika, Egypt, and Palestine, being particularly concerned with water supplies. He was twice mentioned in dispatches. For a time he was also medical officer of health for Jerusalem and P.M.O. of hospitals and dispensaries in Haifa and Acre. Dr. Minett's two best-known books were the *Diagnosis of Bacteria and Blood Parasites*, and *Practical Tropical Sanitation*; he also contributed to the *British Medical Journal* and other periodicals. He had been a member of the British Medical Association since 1909. He is survived by his widow, who graduated M.D.Lond. in 1916 and has held medical appointments in Hong-Kong and British Guiana, and a son, who is a medical student.

Dr. George Bryce, who died at Torquay on October 3rd, was for over thirty years a general practitioner in the Lozells district of Birmingham. Born in 1860 in the village of Whitburn, near Bathgate, Linlithgowshire, he received his medical education at St. Mungo's College, Glasgow, where he won the gold medal in anatomy. An ardent supporter of Peary, the Arctic explorer, he was an early member of the Peary Arctic Club, and his interest in Arctic exploration remained keen throughout his life. He was the author of *The Siege and Conquest of the North Pole*, a historical survey published in 1911. A Feilow of the Royal Geographical Society, he travelled extensively after retiring from practice. His botanical knowledge was deep, and specimens of Arctic flora hitherto unclassified and unknown, collected by him in the most northerly parts of Spitzbergen, were presented to the herbarium at Kew. He travelled far up the Amazon in 1931 in pursuit of rare butterflies and plants. He also made a notable collection of the insect life of Labrador. President for several years of the Torquay Natural History Society (famed in connexion with the

exploration of Kent's Cavern), he was esteemed in South Devon as a popular lecturer on travel subjects. He leaves two daughters (one qualified in medicine) and a doctor son, who carries on the Lozells practice.

Dr. Samuel Edward Pedley, who died on September 21st at Peacehaven in his seventy-third year, had been well known in London as a dental surgeon. He was educated at Charing Cross, Guy's, and the Royal Dental Hospitals, and obtained the L.D.S. in 1885. Three years later he qualified M.R.C.S., L.R.C.P. He then built up a large dental practice in London, being a keen scientist as well as an expert and careful practitioner. He contributed articles to the *Dental Record* and the *British Dental Journal*. He joined the British Medical Association in 1894. One of his sons is in medical practice and four are dental surgeons.

We regret to record the death, on October 13th at the age of 67, of Dr. Edward Leopold Rowse of Putney. After studying at Charing Cross Hospital he took the diplomas of M.R.C.S., L.R.C.P. in 1890, and three years later obtained the degree of M.D. (with honours) at the University of Brussels. At the time of his death Dr. Rowse was consulting physician for women's diseases at the London Homoeopathic Hospital, where earlier in his career he had been resident medical officer. His former appointments included those of house-physician and resident obstetric officer at Charing Cross, and house-physician at the Brompton Hospital. From 1915 to 1918 Dr. Rowse was the officer commanding the Floriana and Ghain Tuffieha Hospitals in Malta. He held the rank of lieutenant-colonel in the R.A.M.C.(T.A.), and in 1921, when he was attached to the 1st London Field Ambulance, he was awarded the Territorial Decoration. Dr. Rowse joined the British Medical Association in 1911.

The following well-known foreign medical men have recently died: Dr. Léon Frédéricq, emeritus professor of physiology in the University of Liége and corresponding member of the Institut de France, aged 84; Dr. John Jenks Thomas, emeritus professor of physiology, Harvard University Medical School, aged 73; Dr. Frank Allport, formerly professor of clinical ophthalmology and otology, University of Minnesota, aged 78; Professor E. Cicero, an eminent Mexican dermatologist; and Professor Filippo Rho, director of the Sanitary Service of the Italian Navy during the war.

The Services

HONORARY PHYSICIANS TO THE KING

Surgeon Rear-Admiral P. T. Nicholls, C.B., and Surgeon Rear-Admiral J. S. Dudding, C.B., O.B.E., have been appointed Honorary Physicians to the King.

No. 12 GENERAL HOSPITAL

The annual dinner of No. 12 General Hospital (B.E.F.) will be held on Saturday, November 23rd, at 7.30 p.m., in the York Hotel, London, W.1. (Price 7s. 6d.) Further information can be obtained from Lieut.-Colonel Jameson, 139, Eglinton Road, Woolwich, S.E.18.

DEATHS IN THE SERVICES

Surgeon Captain George Thompson Bishop, C.M.G., R.N. (ret.), died at Southsea on October 4th. He was educated at Charing Cross Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1892, soon after which he entered the Navy. He attained the rank of surgeon commander on May 12th, 1906, and retired with an honorary step of rank as surgeon captain on January 1st, 1920. He served during the war of 1914–18, receiving the medals, and also the C.M.G., and the French medal of honour for epidemics. He had served as operating surgeon in the Royal Naval hospitals at Malta and Haslar, and also had been surgeon to the Ministry of Pensions Hospital at Hollymoor, Birmingham. His special recreations were golf and philately; under the latter head he was an authority on the stamps of China. Surgeon Captain Bishop joined the British Medical Association in 1893, and served on the Royal Naval Medical Service Subcommittee at headquarters in 1933–4. His colleagues in the Service elected him to give evidence on their behalf before the Halsey Commission.

Lieut.-Colonel Charles Henry Leet Palk, Madras Medical Service (retired), died at Folkestone on October 6th, aged 68. He was born on November 11th, 1866, the son of Henry Palk, Esq., surgeon, Southampton, and was educated at Edinburgh, where he graduated M.B. and C.M. in 1887. Entering the I.M.S. as surgeon on July 28th, 1891, he became major after twelve years' service, and retired on May 1st, 1909. When the war of 1914 began he rejoined for service, and was promoted to lieutenant-colonel from April 7th, 1917. He acted as representative to the Annual Representative Meeting of the British Medical Association held in London in 1910, and again in 1912 at the Liverpool meeting.

Lieut.-Colonel William James Niblock, Madras Medical Service (retired), died at Bournemouth on October 11th, aged 64. He was born on July 10th, 1871, at Clontibret, Co. Monaghan, Ireland, and was educated in that country, graduating M.B., B.Ch., and B.A.O. of the Royal University of Ireland in 1894. He also subsequently took the F.R.C.S.I. in 1906. Entering the I.M.S. as surgeon lieutenant on January 28th, 1896, he became lieutenant-colonel on July 29th, 1915, and retired on February 15th, 1923. His service was spent entirely in the Madras Presidency, and chiefly in the city of Madras. In 1901 he was appointed third surgeon to the Madras General Hospital and professor of biology in the Madras Medical College; in 1909, second surgeon and professor of anatomy; in 1912, first surgeon and professor of surgery: also, subsequently, principal of the college.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

Diploma in Medical Radiology and Electrology.—(*Part II*): H. Jungmann, D. W. Lindsay, D. F. MacDonald, J. W. McLaren, A. Pollitt, N. C. Sinha, I. G. Williams, C. W. B. Woodham.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council held on October 11th, with Colonel H. K. Stephenson in the chair, Dr. C. J. Patten and Dr. Miles H. Phillips were appointed Emeritus Professors, and Dr. H. A. Krebs Lecturer in Pharmacology.

UNIVERSITY OF WALES

The following candidates have satisfied the examiners in the examination indicated:

Diploma in Public Health (*Part II*): R. Cameron, T. C. R. George, *Joan E. Greener, D. J. Jones, G. R. Jones, J. M. Thomas.

* With distinction.

UNIVERSITY OF DUBLIN

School of Physic, Trinity College

The following candidates have been approved at the examination indicated:

Final Medical Examination.—(*Part I, Pathology and Bacteriology, Materia Medica and Therapeutics*): W. T. Kenny, M. Friedman, M. C. Brough, J. H. Mitchell, J. E. Gillespie, F. C. Heatley, R. Pollock, J. C. Lambkin, P. G. Patton, Jasmine Taylor, O. M. Harrison, G. K. Donald, Grace M. Wild, R. J. Sandys, D. B. George, Patricia M. J. Conway, J. N. G. Drury.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on October 7th, the following were admitted Fellows of Faculty: Gilbert Forbes, M.B., Ch.B., and Hugh Gordon Neill, M.B., Ch.B.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly council meeting was held on October 10th, with the president, Sir Cuthbert Wallace, in the chair.

Dr. William Bradley Coley was admitted an Honorary Fellow of the College.

Diplomas of Membership were granted to T. D. Chablani (Bombay and St. George), B. P. Datta (Calcutta and London), E. W. Knowles (Liverpool), and Phyllis J. M. Sykes (University College).

Mr. C. H. Fagge was re-elected a member of the Committee of Management.

The President reported that the Sir Gilbert Blane Gold Medals for 1935 had been awarded to Surgeon Lieutenant-Commander A. A. Pomfret and Surgeon Lieutenant-Commander W. G. C. Fitzpatrick.

Diplomas in Anaesthetics were granted to G. F. V. Anson, H. Charles, L. T. Clarke, Elsie C. Hanson, O. J. Murphy, and J. D. Stewart.

The following appointments were made for the Primary Fellowship Examination, to be held in India: Rai Bahadur Dr. N. L. Pau (Superintendent of Dissections), Mr. L. M. Banergi (Assessor in Anatomy), Dr. B. T. Krishnan (Assessor in Physiology).

Museum Demonstrations

The autumn course of museum demonstrations in the theatre of the College commences on Monday, October 21st, when Mr. A. J. E. Cave will speak on the anatomy of the faucial tonsil. On October 25th Mr. C. P. G. Wakeley will discuss tumours of the brain and spinal cord, and on November 1st and 8th Mr. Cave will deal with the anatomy and physiology of the human larynx. On October 28th and November 4th Mr. L. W. Proger will discuss some diseases of bone. All the demonstrations commence at 5 p.m., and are open to advanced students and medical practitioners.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The following have been awarded the Diploma of the College after examination: P. N. Bardhan, W. Bradley, J. O. F. Davies, E. G. Frewer, S. M. Green, B. P. Harris, A. M. Hunter, W. M. Martin, N. H. Merchant, R. A. Nash, P. W. Rice, S. H. Swift, H. T. Tate, D. Valiram, J. A. Walker, J. W. Walker, B. E. Wurm.

Medical News

The fifth Victor Horsley Memorial Lecture, on "The Integration of the Endocrine System," will be delivered by Sir Walter Langdon-Brown in the lecture theatre, University College Hospital Medical School, Gower Street, W.C.1, on Tuesday, November 19th, at 5 p.m. The chair will be taken by Sir Frederick Gowland Hopkins, President of the Royal Society. Admission to the lecture is free on presentation of visiting card, and tea will be served in the library of the medical school at 4.30 p.m.

On Tuesday, October 22nd, Sir James Jeans will deliver, in the Memorial Hall, Farringdon Street, London, the opening lecture of a series on "Scientific Progress," organized by the Sir Halley Stewart Trust. Other contributors to the series are Sir William Bragg and Professors E. V. Appleton, E. Mellanby, J. B. S. Haldane, and Julian Huxley. Free reserved tickets are obtainable from the Trust, 32, Gordon Square, W.C.1.

Lady Forber (Dr. Janet Lane-Claypon) will deliver the Fynes-Clinton Memorial Lecture at the Midwives' Institute, 57, Lower Belgrave Street, S.W.1, at 5.30 p.m. on October 24th. She will make a preliminary report on the present conditions of midwifery practice, based on a questionary issued by the Institute to 8,000 independent midwives in England and Wales. Tickets (free) will be available at the Institute after October 17th.

The next meeting of the British Congress of Obstetrics and Gynaecology will be held in Belfast on April 1st, 2nd, and 3rd, 1936, under the presidency of Professor R. J. Johnstone. The principal subject for discussion will be the conservative treatment, by operation or otherwise, of pathological conditions of the ovaries, tubes, and uterus, with special reference to functional results. Contributions to the discussion are invited, as well as papers on other obstetrical and gynaecological subjects. All communications should be addressed to the local scientific secretary, Mr. C. H. G. Macafee, 18, University Square, Belfast.

A sessional meeting of the Royal Sanitary Institute will be held at West Hartlepool Town Hall on Friday, October 25th, at 5.30 p.m., in conjunction with the Northern Branch of the Society of Medical Officers of Health. Papers will be read on "The Treatment of Scarlet Fever in Epidemics from the Administrative Point of View," by Dr. J. W. McKeggie, and on "The Social Services from the Standpoint of a Financial Officer," by Mr. R. D. Lambert.

The next monthly clinical meeting for medical practitioners will be held at the Hospital for Epilepsy and Paralysis, Maida Vale, W., on Thursday, October 24th, at 3 p.m., when Dr. Russell Brain will demonstrate. Tea will be provided, and it will be a convenience if those intending to be present will send a card to the secretary.

The Isle of Wight Division of the British Medical Association, in co-operation with the Fellowship of Medicine, has arranged a series of lectures for general practitioners on Thursdays, from November 7th to 28th, both dates inclusive, at the Unity Hall, Newport, Isle of Wight. On November 7th Dr. Alan Moncrieff will speak, at 3.15 p.m., on "Measures for the Prevention of the Specific Fevers," and, at 4.30 p.m., on "Infant Feeding." On November 14th Mr. David Patey will discuss, at 3.15 p.m., "Recent Advances in the Treatment of Fractures," and, at 4.30 p.m., "Sclerosing Operations." On November 21st, at 3.15 p.m., Dr. Clifford Hoyle will deal with "Early Diagnosis of Common Chest Diseases," and, at 4.30 p.m., with "Treatment of Common Chest Diseases." The last lecture will be given by Dr. H. Gardiner-Hill on November 28th, on "Recent Advances in Endocrinology." At 3.15 p.m. he will discuss "Thyroid and Parathyroid," and at 4.30 p.m. "Pituitary, Adrenals, and Sex Glands." The fee for the course is 10s. to members of the British Medical Association and to members of the Fellowship of Medicine; £1 to non-members. Applications to attend the course should be sent, with the fee, to the honorary secretary of the Isle of Wight Division, B.M.A. (Dr. H. S. Howie Wood), Bramley, Shanklin.

The old students' annual reunion dinner of the London (Royal Free Hospital) School of Medicine for Women will be held at the Savoy Hotel on Thursday, November 28th, at 7.30 p.m.

The annual dinner of the Surgical Instrument Manufacturers' Association will be held at the Holborn Restaurant on Friday, October 25th, when the principal guest will be Professor G. Grey Turner.

The Department of Medicine of the University of Sheffield has arranged a series of post-graduate clinics on Fridays and Sundays at the Royal Infirmary and the Royal and Jessop Hospitals. The series opened on October 11th and 13th, and will be continued weekly until November 29th and December 1st.

The Fellowship of Medicine (1, Wimpole Street, W.) announces the following courses: gynaecology, at Chelsea Hospital for Women, October 21st to November 2nd; neurology, at West End Hospital for Nervous Diseases, October 21st to 26th; chest diseases, at City of London Hospital for Diseases of the Heart and Lungs, October 28th to November 2nd; urology, at St. Peter's Hospital, November 4th to 16th; medicine, surgery, and gynaecology, at Royal Waterloo Hospital, November 11th to 23rd. Week-end courses, especially suitable for general practitioners, will be given as follows: physical medicine, at St. John Clinic, October 26th and 27th; clinical surgery, at Royal Albert Dock Hospital, November 2nd and 3rd; gynaecology, at Samaritan Hospital, November 16th and 17th. Lectures on endocrinology will be given at National Temperance Hospital on October 22nd and 24th, at 8.30 p.m. Lectures on modern gynaecology will be given at 11, Chandos Street, on October 24th and 31st, at 4 p.m. Courses and lectures are open only to members and associates of the Fellowship of Medicine.

Both Houses of Parliament have been summoned to meet next Tuesday, October 22nd, to debate the international crisis. All outstanding legislation will be dropped, and a dissolution will follow. The General Election is expected on November 14th.

The telephone number of the headquarters of the London Ambulance Service has been changed to Waterloo 3311. To call an ambulance for the removal from a private house of a case of illness this telephone number should in future be used.

A special autumn course for London parents has been arranged by the Institute of Medical Psychology at its clinic in Malet Place, W.C.1, sessions being held each Tuesday evening from October 22nd. The course, which will be in charge of Dr. Emanuel Miller and deal with the "Problems of Parenthood," will cover such matters as the conflict of the parents' temperaments, sex education of children, and the general management of adolescents.

The London Medical Exhibition will be held in the New Hall of the Royal Horticultural Society, Greycoats Street, Westminster, S.W., from Monday, October 21st, to Friday, October 25th, from 11 a.m. to 6.30 p.m. daily.

The first Italian Congress on Human Alimentation will be held at Rome from October 23rd to 26th, when papers will be read on the organization of scientific research in the service of the national food supply and the work of the doctor in alimentary propaganda.

The forty-fourth Congrès de Chirurgie was held on October 7th to 12th, at the Faculty of Medicine in Paris, under the presidency of Professor G. Michel of Nancy. The three main subjects discussed were: infarct of the mesentery; fracture of the os calcis; and the technique and physiological sequels of operations on the diaphragm, phrenicectomy excepted. The opening papers on these subjects have already been printed, and have been published in a single large volume.

On July 13th (p. 81) we reported the resignation of Dr. R. G. Cochrane from the post of medical secretary of the British Empire Leprosy Relief Association, in order to take up more definitely clinical work in conjunction with the fight against leprosy in India. Dr. Cochrane, with his wife and three children, left London on October 11th for India, where he will take charge of the largest leper colony in that country, the Lady Willingdon Leper Settlement at Chingleput.

Alderman O. Wynne Griffith, L.R.C.P. and S.Ed., has accepted the mayoralty of Pwllheli for the eleventh year. Dr. Griffith is the oldest doctor in Carnarvonshire. He joined the British Medical Association on October 15th, 1879, and was president of the North Wales Branch of the Association in 1911.

La Société Belge d'Ophtalmologie, at its recent meeting in Brussels, nominated Mr. Leslie Paton as "Membre d'Honneur."

In view of the increase in acute poliomyelitis in Germany the president of the Public Health Office of the Reich has made an appeal to parents for the blood of their children who have suffered from the disease since 1928, have now recovered, and are over 5 years of age. A sum of 1 mark will be paid for every 10 c.cm. of blood.

According to the law of July 26th, 1935 (the "Nast Law"), all doctors and dentists practising in France must, before January 27th, 1936, register with the authorities their diplomas of licences to practise. The object of this measure is to provide a complete national register of doctors and dentists duly qualified to practise in France, and thus to check unqualified practice.

The late Dr. John Stokes of Sheffield left £20,806, with net personalty £20,717. Subject to some small personal bequests, including an annuity of £250 to his housekeeper, he left the whole of his estate to the University of Sheffield, with the wish that it shall be devoted to the establishment of a university fellowship in any subject tending to advance the science of medicine and alleviate the sum total of human suffering.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

The **TELEGRAPHIC ADDRESSES** are

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Persistent Lactation

"PERPLEXED" (Cornwall) writes: Could anyone advise me as to the treatment of the mother of a boy now aged 4½ years who has had persistent secretion of milk ever since the birth? Belladonna plasters, magnesium sulphate, ergot, and potassium iodide have been tried with no result.

Income Tax

"G. J." has held a full-time public appointment since January 1st, 1930. He was not admitted to the superannuation scheme until 1934, and was then "allowed to pay the contributions which would have become due during the first four years." Can he now claim an allowance for these arrear contributions?

*** The allowance is governed by Section 32 of the Finance Act, 1921, and the regulations thereby authorized. The Act provides for the allowance of "ordinary annual contributions," and presumably the difficulty in this case is that the authorities regard the payment of arrears—applicable to years prior to acceptance by the scheme and therefore a voluntary addition to a contributor's liability under the scheme—as not being "ordinary annual contributions." It would probably not be worth while formally to contest the official view, but "G. J." might write to the Board of Inland Revenue, Somerset House, W.C.2, setting out any special circumstances in his favour and ask for a specific ruling in his case.

LETTERS, NOTES, ETC.

Quadruplets Born In London

On Saturday, October 12th, the 34-year-old wife of a metal worker gave birth to quadruplets in the Royal Free Hospital. This is the first time that quadruplets have been born in the hospital. The infants—all boys—totalled just under 13 lb. in weight, and at the time of going to press three are "doing well," but one has died. We understand that the mother is herself a twin, that a pre-natal *x*-ray diagnosis was made, that obstetrical difficulties were minimal, and that there were three placentas. One authority quotes the frequency of quadruplets as 1 in 800,000 births. We hope to receive from Professor Amy Fleming a short clinical account for publication in an early issue of the *Journal*.

Cardiac Resuscitation

In the course of a letter discussing this subject Dr. LEO DELICATI (Bath) writes: Are the accidents to which Dr. Primrose (*Journal*, September 21st, p. 540) refers, when he says "means to prevent such accidents [the loss of healthy

lives during the performance of trifling operations] become of prime importance," as frequent when ether is the anaesthetic? If ether is employed the after-effects are very slight. I have no doubt that there were good reasons for giving chloroform in Cases 1 and 2, and a mixture of chloroform and ether in Case 4—also for giving stovaine in the case recorded by Dr. Trevor Lewis (*Journal*, October 5th, p. 640). But, one wonders, why not ether? Dr. Primrose speaks of these cases as constituting "a purely mechanical breakdown, however it has been produced." Cannot, however, the physiologists, pathologists, or biochemists help us here by elucidating *how* it has been produced? Is it not better to prevent the risk than to deal with it when it does arise? And, finally, is it not admitted that ether will reduce the incidence of sudden failure to a far greater extent than chloroform?

Pregnancies After Nephrectomy

Dr. W. Griffith Love (Woodville, near Burton-on-Trent) writes: With reference to Dr. Barron's letter on page 608 of the *Journal* of September 28th, the following notes of a case which has been under my care may be of interest. Mrs. X, aged 40, height 4 ft. 11 in., weight 10 st. (approx.). Nephrectomy performed in February, 1930, for left calculous pyonephrosis, from which she made an uneventful recovery. Prior to her operation she had had five children, of whom three were delivered by forceps. She came under my care in July, 1930, and since then I have attended her at three confinements—in May, 1931, in 1933, and in August of this year. She has had no ante-natal troubles during any of these pregnancies, and the remaining kidney has functioned normally. These three children were all vertex presentations, the first being the only one needing instrumental assistance. In that case the labour was very prolonged, and she was delivered by forceps under chloroform anaesthesia. The puerperium in each case has been normal, and all her children are alive and healthy. In spite of her small stature her pelvic measurements are normal, and incidentally her children have all been above the average in weight, varying from 10½ lb. to 8½ lb.

Haematemesis in Infancy

Dr. R. Force-Jones (Sandbach) writes: I have had recently under my care an interesting case of haematemesis in infancy. The child was delivered normally and appeared healthy. Two days later he began to vomit and to scream. The vomit consisted of almost pure blood. On examination the infant was well nourished and appeared healthy. His abdomen was distended and very tender to touch. There was no jaundice on this or any subsequent examination. His stools were black. Goodhart and Still, in their book on *Diseases of Children*, published in 1905, state that gastric ulcers occur in infants a few days old. In view of the absence of jaundice and the extremely tender abdomen, I concluded that this was a case of gastric ulcer. I followed the treatment recommended by these authors—namely, ordering alum water (2 drachms of alum to a pint of water) to be given in a bottle and withholding all other food for forty-eight hours. In addition, I gave half a teaspoonful of brandy at night. At the end of forty-eight hours, as no further haematemesis had occurred, the child was allowed alternate feeds of the breast and alum water, and by gradually increasing the former and decreasing the latter the infant was on full feeds in a week, and made a complete recovery. On the second day of the illness the infant passed a little bloody urine, the cause of which I am at a loss to conjecture. I should be interested to hear of similar cases seen by other practitioners.

War in Abyssinia: Plea for Women and Children

Lord Noel-Buxton, president, Save the Children Fund, writes: The cloud of war has descended on Abyssinia, and those who realize the misery and suffering that this implies, not for the combatants only but also for the women and children, are asking what can be done to help. I understand that an appeal is being made for funds to provide for the care of wounded combatants: but what of the others who, as the fighting spreads, may meet the hideous experiences of war and be driven from their homes in panic and despair? True to its principles the Save the Children Fund takes no sides in this quarrel. Its one concern is to aid those who suffer most, and the call of Abyssinian children is one that it cannot disregard. It remembers that it was always a strong desire of its founder, Eglantyne Jebb, to promote the work of child-saving in that country, and the opportunity and imperative need now seem to have come. It is proposed, immediately funds permit, to organize relief in the first place for the refugees who will inevitably percolate into the neighbouring territories of British Somaliland and Kenya, and I am assured of the full co-operation of the authorities concerned. Later, with the experience thus gained and as the necessity arises, it is intended to organize relief in Abyssinia itself. In view of the primitive conditions of the country, aid must be extended to adults if the children are to be effectively helped. My council is prepared to undertake this work according to the measure of support forthcoming from the public. I can guarantee that any contributions entrusted to the Save the Children Fund, and addressed to the Honorary Treasurer, 20, Gordon Square, W.C.1, will be used to the best advantage, and subscribers will be informed from time to time of any action taken.

Purpura Haemorrhagica

Dr. H. P. Dawson (Grantham) writes: Having read with interest Dr. Bernard Myers's paper on essential purpura haemorrhagica, in the *Journal* of September 7th (p. 445), I thought the following case, which came under my care a short time ago, might be worth recording in view of the satisfactory response to treatment. An engineer's fitter, aged 45, came to the surgery on November 6th, 1934. There was bleeding from the gums, and purpuric spots were present on both legs. The spleen was not enlarged and the general condition was good. Bleeding time was increased and the capillary resistance test positive. The blood count showed nothing abnormal, but blood films showed almost a complete absence of platelets. During the next few days the general oozing from the gums became much more severe, and large bluish swellings were present. Injections of normal horse serum and haemostatic serum were without effect. On November 14th I gave a blood transfusion of 300 c.cm. citrated blood. Bleeding ceased almost at once, but for twelve hours only, and then began again as severely as before. A second transfusion of 500 c.cm. was given on November 21st. This reduced the oozing but did not stop it, and it gradually became worse again. On November 24th I started injections of coagulen ciba—20 c.cm. of a 3 per cent. solution being given twice daily. The result was dramatic. All bleeding ceased almost at once, and the gums gradually became normal. The injections were continued morning and evening for five days and then reduced to once daily for a week, after which they were gradually reduced and stopped at the end of another week. Further blood films were examined, but there was still almost a complete absence of platelets. No further bleeding has occurred and the man is quite fit. He went for a holiday, and returned to work in January, 1935.

Loose-leaf Textbooks

BM/RJDK writes: There must be many among us who are anxious to keep up to date and who yet feel a considerable difficulty in doing so. New methods of treatment are constantly being brought before us by the medical journals. We read these and make some mental note of them; later, when such a case occurs, we have mislaid the reference and feel that our old textbooks are out of date (most medical books are out of date in five or six years, often less). There is only one way as far as I can see, or shall I say one best way of getting over the difficulty—namely, to have loose-leaf books published and by annual subscription to have additional pages sent on to bring the book up to date. Many elaborations of this scheme might be thought out, and at times a whole page or pages might be eliminated and replaced by new matter. Suggested treatment which had not stood the test of time might be in another colour. I could tell of several valuable suggestions discovered in the *British Medical Journal* which I think have been lost to most practitioners.

Medical Golf

The sixth autumn meeting of the Sussex Medical and Dental Golfing Society was held on the links of the Brighton and Hove Golf Club on October 6th, when eighteen members competed. The captain's trophy was played for in the morning and was won by Mr. J. Scott Page with 3 up. In the afternoon, in the foursomes, Messrs. Gregg and Glover tied with Messrs. Wallace and McAleenan with a score of 4 up. Pleasant weather was experienced after a showery beginning.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 54, 55, 56, 57, 58, 59, and 63 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 60 and 61.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *180*.